

The China Business Review

THE MAGAZINE OF THE NATIONAL COUNCIL FOR US-CHINA TRADE

November–December 1987

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The China Business Review

The magazine of the National Council for US-China Trade

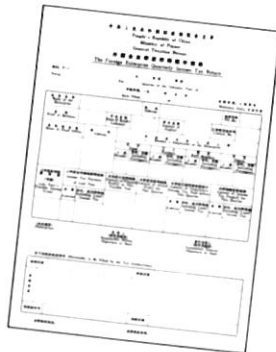
November-December 1987

Volume 14, Number 6

Cover: The Temple of Heaven no longer stands alone on Beijing's skyline. Photo by Dennis Cox.



Taxes: As foreign business operations in China become more complex, so do Chinese taxes. Page 18.



Health care: China is using imported equipment, technology, and expertise to try to ease some of the pressures on this sector. Page 26.



Newsmakers: He Chunlin on Foreign Investment	A preview of China's forthcoming import substitution regulations and more.	6
<i>by John Frisbie</i>		
Boom to Bust	Overbuilding in Beijing is good news for expatriates.	8
<i>by Andrew Ness</i>		
Tax Guide	China's evolving tax policies and their impact on foreign business.	18
<i>by Timothy A. Gelatt</i>		
Hospital Care in China	With stresses on the system building so rapidly, national health care planners are finding it hard to keep up.	26
<i>by John Lewis and Deborah Diamond-Kim</i>		
Technology for China's Hospitals	Hospitals at all levels try for a piece of the action.	29
<i>by Teh-Wei Hu</i>		
Selling Medical Equipment to China	Swings in the market have not discouraged foreign suppliers.	32
<i>by Paul Woodward</i>		
Medicines for Millions	Will China's pharmaceutical industry be able to improve quality and increase quantity?	35
<i>by Julia S. Sensenbrenner</i>		
A Pharmaceutical Deal	Administrative and financial reorganization in the industry caused one company to move from straight sales to a joint venture.	40
<i>by Roy F. Grow</i>		
The New Customs Law	New rules for the growing task of monitoring the influx and outflow of goods.	44
<i>by Yvonne Chan and Mimi Levy</i>		
Understanding the Tariff System	Customs officers have collected about \$20 billion in duties since 1979. Here's why and how.	46
<i>by Yvonne Chan</i>		
The S&T Connection	Together the US and China are tackling everything from gypsy moths to hepatitis.	50
<i>by Toufiq A. Siddiqi, Shi Minghao, and Jin Xiaoming</i>		

Departments

Trends and Issues	4	Bookshelf	55
		China Business	56

TRENDS & ISSUES

摘要

TAKING IT TO THE HILL

Like many other countries in the world, especially those with strong executive governments, China has long found the US Congress a puzzle. Not understanding Congress' role in foreign affairs and uneasy about engaging in behavior that might be perceived as meddling in US politics, China has focused its attention on America's executive branch. Any "sour notes" played in Congress were thought to have been orchestrated by the executive branch, or at least benignly overlooked by it.

With this perspective, China did not put much effort into lobbying the Congress—until recently. But the realization that US trade legislation could seriously hurt Chinese economic interests has made Chinese officials more eager to have a voice on Capitol Hill. In fact, some of China's most prominent foreign affairs institutes have begun looking into how China might best benefit from an increased presence on the Hill.

In 1985, China was faced with a protectionist textile bill making its way through Congress. Taking matters into his own hands, Ambassador Han Xu sent a mailing to the National Council and over 60 US companies with interests in China, asking them to oppose the Jenkins Bill, which would have severely restricted Chinese textile exports to the United States. The ambassador used the same tack the following year to protest proposed changes in US antidumping laws, which, if adopted, would have slapped significantly higher tariffs on many Chinese products. As part of this effort, a follow-up letter was sent this spring, and commercial staff at the Chinese Embassy began making calls on congressional offices in hopes of finding sympathetic listeners.

China's new activism on the Hill may not have had much of an impact on US trade legislation. The proposed changes to antidumping laws are not likely to become law for rea-

sons that have more to do with the structure of the overall trade bill than with China's lobbying efforts. But China's efforts are still noteworthy because they indicate a growing acceptance of lobbying as a legitimate tool of foreign policy. More important, these lobbying initiatives may be a sign of enhanced understanding of the American political process. Growing realization in China that Congress has a mind of its own can help reduce expectations—and hence bitterness—in Beijing about the inability of the US president to remove all irritants in the bilateral relationship.

—Gideon Rosenblatt

GALLUP-ING REFORMS

During the days of Chairman Mao, if a Party official wanted to know the will of the masses, he might make a grass-roots inspection tour. Now, gauging the popularity of reform policies is increasingly left to poll-takers.

Not surprisingly, China's public opinion polls mainly have good news to report. More than 80 percent of people surveyed support the reforms, more than 50 percent claim they have already benefited from them in one way or another, and more than 40 percent are optimistic that their living standards will improve over the next five years.

But the polls do show popular dissatisfaction with certain side-effects of reform such as inflation and growing corruption among officials. They also show that, despite the flowery words of local functionaries, enterprise reform has often been more rhetoric than substance to date.

Such polls are proving useful to Chinese policymakers who want to determine whether their message is getting across. They also give legitimacy to the idea that there can be a diversity of interests even in a socialist society, and provide leaders with advance warning of people's reactions to controversial reform mea-

asures. A case in point is the bankruptcy law, where polling was used extensively before the experimental law was released last year.

Without question, polling is being used mainly to assess and promote the reforms. But not always. Some surveys contain seemingly frivolous questions about what qualities students want in a spouse (nowadays beauty ranks ahead of being "politically correct") or what Shanghai residents do with their leisure time (they spend more time sleeping and reading newspapers than the average American).

Many Westerners are bound to look at Chinese poll results with a measure of skepticism. After all, these polls are mainly conducted by government officials from State-run social science organizations. But a recent article in *China Daily* provides grounds for optimism. One of the most recent surveys was reportedly conducted by young, permanent part-time interviewers. Asked about the reason for the change, the survey director replied, "The interviewers in former surveys were mostly government employees whose way of asking questions was often suggestive." But with young, nonofficial interviewers, "[people] are more outspoken and what they say is more reliable." —DDK

THE OTHER IMPORT

The debate has raged, on and off, in China for over a century. Is Western science and technology all China must borrow to be strong? Or is something of Western culture necessary too? By the 1920s, Chinese intellectuals had basically agreed that some Western culture was worthwhile, and some Chinese ways outmoded. Fifty years later, with China just reemerging from self-imposed isolation, a new generation found itself debating the same issues all over again. At first, only Western science and technology were said to have value; later, Western management

science was added. But recently, the spirit of the 1920s has come alive again. The fashionable approach now is to criticize Chinese cultural traits that may be keeping China from taking its place among the modern nations of the world.

Just which Chinese cultural traits must go? Jealousy, for one, say the critics. Called the "red-eye disease" in China, jealousy is everywhere. One author, writing in China's leading intellectual newspaper, *Guangming Ribao*, illustrated the problem with a parable: "When two Americans are in a race, what the one behind has in mind is how to beat his opponent through his own physical strength; . . . in the case of two Chinese, after the firing of the signal gun, they would start a fight instead of racing, and the winner, after knocking down his opponent, would slowly walk to the award rostrum." In short, sabotaging the work of others, rather than concentrating on improving one's own performance, is sapping the energy of the country.

Another oft-cited defect in the national character is the feudal preoccupation with hierarchy, which causes people to be servile before the powerful and arrogant toward the weak. This is not only a problem in Chinese relations with each other but in their relations with foreigners, as one commentator in Shanghai's *Liberation Daily* points out. "Chinese always call foreigners by two different names, namely, beasts and saints, but never greet them as friends or treat them as equals."

Many intellectuals also decry what they see as the inherent conservatism of the Chinese people. Modern society, they claim, requires an adventurous, lively, and risk-taking spirit, whereas most Chinese are by nature relatively passive and fearful of taking responsibility or risk.

But these present-day social critics also see a good deal worth preserving in China's national character. Among the most cherished traits are love of family, industriousness, and thrift. The last two are obvious requirements for an industrial society, whereas the former, say many scholars, will help China avoid the social ills prevalent in Western society.

Even this perspective is too negative for conservative Party officials, who worry that all this critical introspection is bad for national morale and bad for the Communist Party. As

a result, some books discussing China's national character have been pulled from the shelves. But, all told, the official reaction has not been very harsh, perhaps because opinion on the subject remains divided at the top. After all, neither jealousy, complacency, nor low self-esteem help modernization efforts much. —DDK

THE YEAR OF THE MOUSE

For the Walt Disney Company, 1987 has been the Year of the Mouse and Duck—rather than the Rabbit—as Mickey Mouse and Donald Duck wiggle their way into Chinese children's hearts. Thanks to a two-year agreement with China Central Television, Disney cartoons, dubbed in Chinese, began airing last October for 30 minutes each Sunday night. In exchange, Disney has the right to sell two minutes of advertising time per show. Such consumer-oriented companies as Kodak, Coca-Cola, and Hitachi have signed on at \$5,000 for a 30-second spot.

After familiarizing Chinese parents and children with the Disney characters, the company plans to begin marketing the full line of Disney products in China, including merchandise, films, books, and magazines. Disney cartoons are already so popular that China's streets are virtually empty of children on Sunday nights, and company executives hope to turn this popularity into a niche for their products in China. Contracts between Disney and Chinese factories officially licensed to produce these products have already been signed.

But the Walt Disney Company is finding that breaking into the China market is not all fun and games. First, the trademark for Mickey Mouse was awarded to a relatively unknown candy factory in Guangdong before Disney could file a complaint. Disney quickly obtained the rights to its other cartoon characters, but this may be of limited use in a country relatively unfamiliar with trademark protection laws. Chinese entrepreneurs are already flooding the market with the familiar faces of Mickey and Donald—on everything from sweatshirts and storefronts to cigars and thermometers. Disney is pursuing this problem through official channels, but the size of China may preclude the company from ever gaining full control.

—Kathleen Syron

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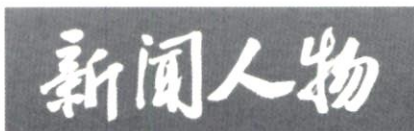
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He Chunlin on Foreign Investment

He Chunlin, executive director of the State Council Leading Group for Foreign Investment, visited the United States in September at the invitation of the National Council for US-China Trade. The Leading Group, established by the State Council in August 1986, is charged with improving conditions for foreign investment in China (see The CBR Jan-Feb 1987, p. 10). Executive Director He, who reports directly to State Councilor Gu Mu, wanted to learn firsthand about the problems US investors face in China. He Chunlin and National Council President Roger Sullivan traveled to six cities and met with some 120 US companies to discuss China's investment climate and new investment legislation. During the trip, He Chunlin answered questions posed by John Frisbie, manager of the National Council's investment program.

Q: How many implementing regulations for the October 1986 "Provisions for the Encouragement of Foreign Investment" will be released?

A: We plan to promulgate 16 sets of regulations. Twelve have been published so far. Regulations on import substitution will be next.

The other three regulations will concern the Chinese partner in a joint venture. The first deals with the management of Chinese workers. The second will deal with distribution of profits to the Chinese party. In the past, most of the Chinese side's share of joint venture profits went to the government, giving Chinese enterprises little incentive to enter into a joint venture. The third regulation will streamline the procedures for obtaining entry and exit permits for the Chinese staff of joint ventures.

Since these three regulations only pertain to the Chinese side, they will not be promulgated quickly. First they will be implemented on an ex-

perimental basis. Necessary adjustments will then be made to the draft regulations before publication.

Of course, this does not rule out additional regulations in the future. One purpose of this trip is to talk to investors and determine what new measures may be necessary.

Q: You mentioned that local foreign investment leading groups have been established to assist the national Leading Group in overseeing implementation of the Provisions for the Encouragement of Foreign Investment. Who sits on these local groups and who do they report to?

A: First of all, not all provinces and municipalities have a local leading group. They exist mainly in the developed coastal provinces and the municipalities where most foreign investment has been made. These local groups are headed by the governor or vice governor (or mayor/vice mayor) responsible for economic affairs. They are modeled on the national Leading Group—that is, they are composed of the heads of various departments that handle foreign investment in the locality [e.g., the local planning and economic commissions, and the local branches of the Bank of China, Customs Administration, the Ministry of Foreign Economic Relations and Trade (MOFERT), foreign exchange administration bureau, etc.]. These local groups are not under the central Leading Group jurisdiction, but they do report to my office.

Q: What Chinese organizations should foreign investors go to for assistance when they encounter problems?

A: First they should approach the Chinese partner's local supervisory organization. For example, if the Chinese partner is involved in light

industry, then go to the local light industry bureau. If this organization cannot resolve the problem, the next step depends on the status of the project. For projects under negotiation, approach the local Foreign Economic Relations and Trade Commission (FERTC). For already established foreign investment enterprises, the problem should be discussed with the local economic commission. If these departments cannot help, the investor should go to the local foreign investment leading group.

If local authorities prove unable to solve the problem, the matter can be taken to the central authorities in Beijing. The investor should first try the relevant national ministry, such as the Ministry of Light Industry. The next step is to approach MOFERT for projects under negotiation or the State Economic Commission if the enterprise is already established.

As a last resort, the investor can approach my office. The best channel for doing this is through the National Council for US-China Trade.

Q: When will the national import substitution regulations be released?

A: Currently, the import substitution policy is being implemented on a trial basis in Shanghai, Tianjin, Guangdong, Fujian, and Liaoning. These areas have selected some products made by foreign investment enterprises to be part of their local import substitution plan, and these products can now be sold domestically for full or partial payment in foreign exchange. The central government regulations will be published after studying the results at the local level.

However, I should caution foreign investors that the import substitution policy is only in the initial stages. For the moment, import substitution certification for foreign investment enterprises will have to be handled on a case-by-case basis.

Q: How can a foreign investment enterprise obtain import substitute status for its products?

A: The enterprise first applies to have its products included on the list of import substitute products. The local economic commission, planning commission, FERTC, and the department in charge of the product review and approve this application. The product then has to be inspected by the China Commodity Inspection Bureau or another designated organization to ensure it meets price, specifications, quality, and delivery schedule requirements.

Q: Can foreign investors determine before the joint venture contract is signed if their products will qualify as import substitutes?

A: The feasibility study for the investment project should clearly state what percent of total production the joint venture plans to export and sell domestically and how foreign exchange will be balanced, including any domestic sales made for foreign exchange under import substitution procedures. Approval of the feasibility study implies approval of import substitution status in such cases. After the enterprise begins production, the product will be inspected to ensure it meets the requirements specified [in the contract].

Q: In the early stages of production many import substitutes are not price competitive with imports. Will any price tolerance be given to these enterprises?

A: We recognize this problem and are prepared to offer some price tolerance. However, the amount and duration of any price subsidy will be determined case by case.

Q: Many investors are also concerned that advanced technology status cannot be confirmed until after the enterprise is established. Is there any way a project can be certified before a contract is signed?

A: A joint venture's intent to acquire advanced technology status and the resulting preferential treatment it expects should be included in the feasibility study. Approval of the feasibility study implies MOFERT or the local FERTC will award the venture advanced technology status.

In addition, during negotiations

the investor should tell MOFERT and the Leading Group (or their local level counterparts, depending on the size of the project) that the project is seeking advanced technology status. After the contract is signed and the enterprise applies for this status, confirmation can follow quickly.

Q: Investors are concerned that advanced technology status will have to be reviewed and reconfirmed each year. Can you comment on this?

A: Advanced technology status needs to be reviewed each year to guarantee that the enterprise is continuing to produce products to the required specifications and technical level. However, if a joint venture fails to meet these requirements in any one year, it will continue to enjoy advanced technology status and preferential treatment. Only if the enterprise fails to meet the requirements for three consecutive years will it lose advanced technology certification and be required to pay back-taxes.

During this trip many US investors have told me that requiring annual examinations is too strict. They suggest recertification only be done every five years. We will discuss this suggestion when I return to Beijing.

Q: Is China considering ways in which foreign investment enterprises that produce intermediate goods can get foreign exchange?

A: In principle, we feel it is justifiable for intermediate manufacturers to share downstream export earnings. But it is very complicated to devise a mechanism for them to actually get a portion of the foreign exchange. I should point out that this situation also affects Chinese factories. The Leading Group and other relevant departments are investigating this matter and will try to develop a policy to share foreign exchange. For the moment, though, the investor should attempt to resolve this problem in the contract it signs with the finished product manufacturer.

COUNCIL MEMBERS MEET INVESTMENT OFFICIALS



He Chunlin (second from left) and Roger Sullivan, president of the National Council, listen to member company concerns.

The National Council for US-China Trade organized seminars in New York, Chicago, Atlanta, and San Francisco to allow member companies to meet He Chunlin, executive director of the State Council Leading Group for Foreign Investment, and his delegation. Executive Director He stated that the delegation's purpose in meeting US companies was not to promote investment in China, but instead to learn firsthand the problems companies encounter when investing in China. The suggestions companies made and the information gathered on the trip will help the Leading Group make recommendations to the State Council on any necessary modifications in China's foreign investment regulations.

At the meetings, many company representatives said they were encouraged by the spirit of China's new legislation, but felt the regulations are not yet being fully and uniformly implemented, creating great uncertainty for joint venture operations. He Chunlin responded that he was aware of this issue and in some cases promised to look into specific company problems after he returned to Beijing. He Chunlin said that his candid discussions with company representatives in the United States were a great help to him in identifying and better understanding investor problems, and he expressed a strong desire to have the National Council continue to act as a channel of communication between US companies and his office.

Boom to Bust

The coming glut in Beijing's expatriate accommodations

Andrew Ness

The municipal governments of Beijing, Shanghai, and Guangzhou are trying to put the brakes on the rapid proliferation of deluxe accommodations being built for foreign travelers and expatriate businesspeople. But it may already be too late. During a recent meeting of the heads of China's regional tourism bureaus, State Councilor Gu Mu warned of a flood of accommodations over the next three years that "threatens to outstrip any conceivable growth in the numbers of foreign visitors we re-

ceive annually."

The disorder now reigning in real estate development to some extent reflects China's confused transition from a planned to a market-oriented economy. The initial scheme was to draw foreign investment into real estate development while central and local planning authorities monitored the rate of growth. However, market forces allied with bureaucratic self-interest to overwhelm the less formidable barriers to excess growth erected by the planning authorities.

By the second half of 1986, when it had become clear that the situation in Beijing, Shanghai, and Guangzhou was getting out of hand, the State Council responded with Directive 101, which ordered a complete freeze on approvals to build luxury accommodations in these three cities. Approval for any project that did not have a signed contract was to be rescinded. In response to this directive, Beijing trimmed its planned real es-



tate foreign investment projects from approximately 120 to 90. Guangzhou cut its projects from 37 to 30 and reduced the scale of another four projects. Shanghai has been slower to respond, with construction of deluxe real estate projects still proceeding at a frantic pace. The number of accommodations for foreigners in Shanghai is projected to jump 70 percent in 1987 alone.

Despite this initial shake-out, the supply of accommodations in Beijing in 1990 will still exceed demand. Well over 40 percent of the new hotels planned for Beijing will meet deluxe international standards, all targeting clientele in the same relatively narrow upper range of the market. However, a survey by Beijing's tourism authorities found that 65-70 percent of foreign travelers fall within the middle to low income range—including the 90 percent of individual travelers who seek lodgings in the ¥30 per night range. The future apartment supply situation—although not as excessive—will also cater to the expatriate manager, whose numbers are now growing at a slower rate than that of local and foreign support and administrative staff. And office space is expected to exceed demand by at least 40 percent.

Beijing's boom

Beijing's troubles began in 1984 and 1985 (see *The CBR*, Jul-Aug 1985, p. 36), when extremely high rates prevailed for expatriate accommodations in Beijing. Chinese units that controlled the rights to choice sites saw an opportunity to make easy, hard currency profits in joint venture real estate arrangements with foreign partners. But few Chinese or foreign developers carefully considered what the supply and demand for accommodations would be like at the time the new projects opened.

Compounding the problem was a lack of regulations stipulating minimum debt/equity ratios prior to 1986. As a result, many foreign developers, particularly smaller firms with limited financial resources, tried to structure deals that were virtually risk-free. The Chinese side hoped to only invest its land-use rights, while the foreign side intended to take out commercial loans backed by 100 percent guarantees from Chinese financial institutions to cover its entire eq-

uity contribution. However, in the first review of foreign investment real estate projects last year, this type of project was labeled financially unsound and was often weeded out.

Beijing authorities had trouble maintaining any control over real estate investment because many of the projects were backed by powerful, central-level organizations whose subsidiaries held equity shares in the venture. A few prominent examples include: the China World Trade Center, backed by MOFERT; the Shangri-La Hotel, backed by the China Non-

The Beijing authorities, now fully aware of the potential oversupply of accommodations that still threaten to flood the city, are planning a second major meeting to further cut the number of real estate development projects with foreign investment. This meeting will go further than the earlier one convened at the end of 1986 since it will evaluate projects that already have signed contracts but which are not yet under construction.

ferrous Metals Corporation; Noble Tower, backed by the State Science and Technology Commission; the Kunlun Hotel, backed by the Ministry of Public Security; the Capital Guesthouse, backed by the State Council; the Palace Hotel and Jinglang Hotel, backed by the People's Liberation Army; and the International Cultural Center, backed by

Andrew Ness is the deputy representative in the Beijing office of the National Council for US-China Trade. This article is adapted from a forthcoming study of expatriate accommodations in Beijing to be published by the National Council for US-China Trade.

the Ministry of Culture. Boasting their own deluxe hotel projects, these organizations gained prestige as well as a "manor" in the capital—or at the very least a future source of inexpensive, deluxe office space. In many cases, these central organizations had the clout to slide their pet projects through the approval process, despite growing disquiet among local planning and construction authorities.

According to one Chinese estimate, at the height of the boom the city had as many as 50 central-level and 90 local-level real estate development projects involving foreign investment on the drawing board or under way and a roughly equal number of wholly Chinese-financed projects either approved or under consideration.

The shake-out

When the authorities did finally respond in 1986, their initial project-trimming—combined with the natural attrition rate—caused some of the less competitive projects to drop out. By September 1987 Beijing was left with approximately 73 foreign investment projects, of which 42 were under construction and eight were slated to begin construction within the next two years (see list). Another five had been stopped, at least temporarily, while the status of the remaining 17 projects is unclear although the majority are likely to be axed.

In addition, one well-placed source estimates that Beijing still has as many as 50 wholly Chinese-backed real estate development projects. Eight of these are major accommodations/office projects oriented toward the foreign community and are already under construction. Information on the rest of the projects is sketchy, but they are likely to include: arcades with retail stores and restaurants catering to the local population, some specialized commercial buildings, and many medium to low quality hotels and guesthouses.

The Beijing authorities, now fully aware of the potential oversupply of accommodations that still threatens to flood the city, are planning a second major meeting of the municipal planning, construction, foreign economic relations and trade, and tourism authorities to further cut the number of real estate development projects with foreign investment.

This meeting will go further than the earlier one convened at the end of 1986 since it will evaluate projects that already have signed contracts but which are not yet under construction. Approvals will be withdrawn for unsound projects lacking a competitive location (i.e., outside the city's Third Ring Road) or lacking solid financial backing.

The number of Chinese-financed projects will also be radically reduced. On July 7, 1987, the State Council issued a directive mandating that a tax be levied amounting to 30 percent of the total construction costs of all domestic, nonproductive projects outside the State plan. This directive was aimed at local projects that siphon off badly needed con-

struction materials from key State-plan projects, and large-scale real estate projects lacking central-level backers are bound to be among the hardest hit.

While no concrete implementing regulations have yet been passed, all domestically financed projects not in the Beijing municipal plan were ordered to temporarily halt construction pending a status review. All of these projects, including those that have already begun construction, must apply to the Beijing Planning Commission for permission to continue. Only if the commission deems the project commercially viable can work proceed—after the 30 percent construction tax is paid. The commission is expected to terminate most of

the these out-of-plan projects.

The specter of vacant rooms

Just how much of a real estate glut will Beijing face by 1990? Based on the total number of expatriates and a survey of the city's 50 projects involving housing or office space for foreigners that are now under construction or will begin construction soon, the following is the expected relationship between supply and demand for office space, apartments, and hotels.

● **OFFICES.** In September 1987 Beijing had 11 buildings offering pure office space in various configurations, including two actual office buildings. The remaining space was in hotel wings, apartment complexes,

BEIJING'S FOREIGN BUSINESS COMMUNITY

From 1981 to 1986 the number of registered liaison offices in Beijing grew at an average rate of 23 percent each year. However, during the first six months of 1987, the growth rate slowed to about 8 percent, with officially registered offices increasing from 916 to 952 according to the State Administration of Industry and Commerce (SAIC) (see graph). Barring an unexpected upturn in China's business climate, the annual growth rate for Beijing's foreign business community should remain at this level through the end of 1990.

There are now roughly 4,130 expatriates working in the 1,050 registered and unregistered liaison offices. However, of the average of just under four non-PRC citizens per office, only 2.3 expatriates per office are registered with SAIC. The Foreign Enterprise Service Corporation (FESCO) provides an additional 2,600 employees to the offices of foreign firms, and the number of Hong Kong administrative staff working in Beijing is estimated to be well over 1,000. Thus, on average, 7.3 people work in each office.

The SAIC figure takes into account expatriates on work permit visas but fails to include expatriates on extended business trip visas. Foreigners on business visas are not required to register with Chinese authorities but must leave the country every three months to renew their visas. While this requirement can be a hassle, the business trip visa offers several benefits. Some multinational corporations—particularly large Japanese conglomerates—maintain several subsidiaries in Beijing but only register the com-

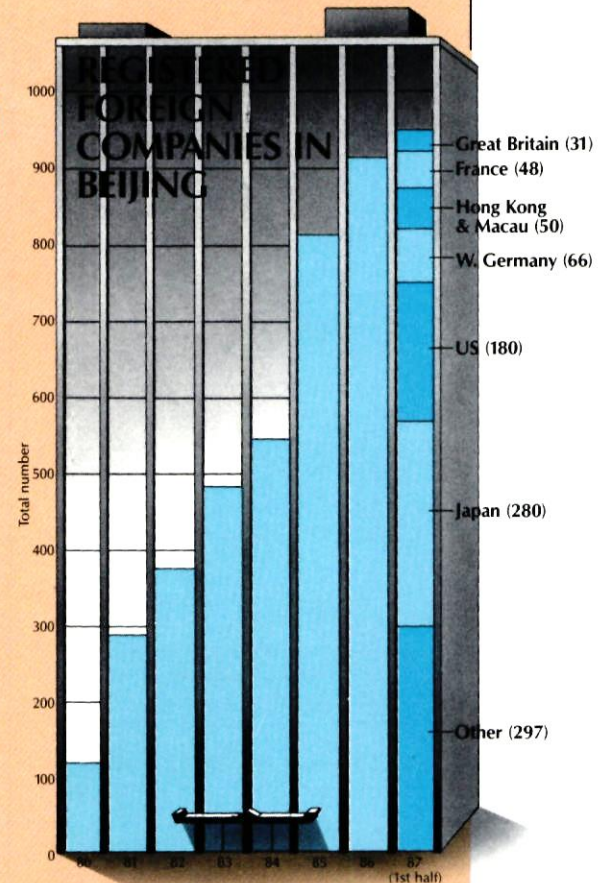
An average of 7.3 people work in each foreign representative office in Beijing.

pany once to avoid the extra expense of separate bookkeeping that multiple registrations would require. Furthermore, each registered foreign firm may only have a maximum of 25 representatives and deputy representatives. Many conglomerates now neatly sidestep this restriction by bringing in as many expatriate staff as needed on extended business trip visas.

In early 1987 Beijing's total expatriate population was approximately 16,500, including 1,900 Americans; 2,600 Japanese; 3,000 West Europeans; and 3,300 Hong Kong residents. At the same time there were some 11,660 households (a household being defined as a leaseholder, whether this be a family with children or a single individual). By profession, the households include: 4,130 businesspeople; 5,100 diplomats; 300 foreign experts and teachers; 300 journalists; and 1,800 foreign students.

Foreign experts and students usually get free or subsidized housing from their Chinese work units or schools, and the majority of diplomats and journalists are housed in special,

subsidized residential compounds not open to the rest of the expatriate community. Consequently, the core demand for expatriate housing comes from Beijing's 4,130 foreign business households and the approximately 1,640 embassy households now lodged in commercial expatriate housing.



SOURCE: State Administration of Industry and Commerce, Foreign Enterprise Registration Department.



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or Chinese commercial buildings where a portion of space can be rented to foreign companies. These buildings collectively offer 57,155 square meters of space.

However, the distinction between hotels and office buildings remains blurred in Beijing since up to 66 percent of the 952 officially registered representative offices in Beijing still conduct operations from hotel rooms. For example, in September 1987 only about 60 of the 180 US firms in Beijing had offices in commercial buildings rather than hotels. Most of the remaining 120 firms were still operating out of hotel rooms, with two or three conducting operations out of apartments, and an additional three or four firms utilizing Chinese commercial space. (Only foreign firms that have joint ventures or servicing agreements in China can rent ordinary Chinese commercial space at normal domestic rental rates, since this must be arranged through their Chinese partner.) Even fewer Japanese firms were operating in commercial office space—just over 20 percent of the the 266 Japanese companies in Beijing.

Beijing has an estimated 1,050 foreign offices if the 100 or so unregistered foreign offices are included. Assuming that most foreign firms now operating from hotel rooms or provisional office space in Beijing would prefer to relocate to office buildings, and that the average foreign firm requires 150 square meters of office space, the current unsatisfied need for office space is about 105,000 square meters. If one further assumes that the number of foreign liaison offices in Beijing will grow at the estimated 1987 rate of 8 percent per year, Beijing will have approximately 1,320 foreign liaison offices requiring a total of about

198,400 square meters of office space by the end of 1990. However, adding the 52,700 square meters of superior office space that Beijing now has in Noble Tower, the CITIC Building, and the Lido Commercial Center to the 265,000 square meters that will be brought onstream over the next three years by the 15 high-rise office facilities now under construction, the city will have 317,700 square meters of office space by 1990—an oversupply of about 40 percent.

This projection assumes that virtually all foreign companies now main-

Although a major decline in prices is still about two years off, signs are already pointing to a softening of the expatriate accommodations market in Beijing.

taining office space in hotels will give up these accommodations in favor of office buildings. However, some of the smaller companies may not make the move, creating an oversupply in excess of 40 percent. This imbalance will ensure that a noninflationary market for office space will prevail in Beijing for at least several years after 1990.

There are, however, a number of factors that could throw this calculation off. Continued improvement in China's investment climate or in the operating environment for foreign liaison offices could spark a surge of

growth in the number of foreign offices or expansion in existing ones. In this case, the supply of office space in 1990 would be in balance with demand or exceed it only slightly.

● **APARTMENTS.** In September 1987 Beijing had 10 apartment buildings or apartment complexes (apartment being defined as any residential unit of one room or more containing a kitchen), offering a total of 1,626 residential units. This means that just under one third of the city's 5,770 expatriate businesspeople and diplomats in need of commercial housing live in apartments, while the rest still live in hotel rooms. Unfulfilled demand for expatriate apartment space therefore currently stands at about 4,000 units.

Some 20 new projects adding 4,926 apartments or detached/semi-detached single family homes will be finished by 1990. The projected relationship between total future supply and demand for apartment space is therefore not too badly out of whack. But the majority of these apartments are being built to deluxe standards and are clearly slated for managerial-level personnel, even though this category of employee is increasing at the slowest rate—and may now even be declining. In fact, there is a clear and growing trend for foreign companies in Beijing to attempt to minimize the high prices they must pay by scaling back the number of expatriates stationed in Beijing, replacing them with more local or Hong Kong staff. Some foreign firms are elevating local staff to positions of greater responsibility as they find that their grasp of China's cultural milieu and business practices can make them better suited for marketing and customer liaison jobs than expatriate personnel.

Thus by mid-1990 Beijing is likely to have a moderate surfeit of luxury apartments. The current shortage of moderately priced apartments for lower-ranking staff members will be considerably eased by a few new residential projects aimed at the middle-range market, reduced rates at existing hotels that are less luxurious or in outlying locations, and the greater availability of luxury apartments that will free up existing, less-expensive space in places such as the Friendship Hotel.

● **HOTELS.** In July 1987 Beijing had 78 commercial hotels open to all foreign guests, five hotels that re-

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PROJECTS UNDER CONSTRUCTION IN BEIJING

Estimated completion date	Hotels	Apartment buildings	Office space
1987 4th quarter	International Hotel* 1,049 units Liuting Hotel 278 units		
1988 1st quarter	Beijing Hotel* VIP Building 287 units Capital Guesthouse* 292 units Peace Hotel (new wing) 300 units Zijingong Hotel	Capital Guesthouse* 33 units	Capital Guesthouse* 45 units; 3,500 sq.m.
2nd quarter	Guoan Guesthouse* 125 units Yanshan Hotel 225 units Capital Hotel* 500 units Olympic Hotel 380 units Olympic Hotel 380 units	Huatai Apartments 141 units Yanshan Hotel 62 units	
3rd quarter	Beijing Exhibition Center (new wing) 250 units	East Lake Villas 165 units Intl Tennis Club Apartments 151 units	East Lake Villas 3,600 sq.m.
4th quarter	Intl Cultural Exchange Center 256 units Jingdu Hotel 700 units Jinglang Hotel 450 units Lingnan Hotel 306 units New World Apartments 85 units Songhe Hotel 323 units	Intl Cultural Exchange Center 42 units Jianguomenwai Overseas Chinese Apartments* 282 units New World Apartments 135 units Wanquanhe Apartments 192 units	Intl Cultural Exchange Center 46 units; 10,000 sq.m.
1989 1st quarter	Beijing Hongkong Hotel 350 units Palace Hotel 557 units		Guiyou Mansion 1,148 sq.m.
2nd quarter	Asia Hotel 310 units Liangma River Complex 500 units	Asia Hotel 80 units Liangma River Complex 270 units	Asia Hotel 80 units; 4,000 sq.m. Liangma River Complex 340 units; 29,000 sq.m.

ceived only restricted categories of foreign guests, 18 hostels or guesthouses of rather low standards, and 22 guesthouses run by various ministries or other Chinese organizations to accommodate their own guests. Collectively, these facilities offered about 22,000 rooms for foreign visitors and were more than sufficient to provide accommodations for the estimated 1.05 million foreign visitors who came to Beijing in 1987.

During the next three years foreign visitors to Beijing will find more choices and lower rents. The Beijing Tourism Bureau predicts that 1.5 million foreign travelers will visit the capital in 1990, a growth of 43 percent. At the same time, the 17,685 units in Beijing's 78 commercial hotels now licensed to accommodate foreign travelers will be supplemented by at least another 38 hotels or facilities containing hotel space, which will nearly double the city's supply of hotel space. This estimate does not even take into account the large number of wholly Chinese-owned projects, for which little information is available.

Good news for expatriates

The group that stands to gain the most from the coming glut are the foreign liaison offices, which have suffered from spiralling increases in the price of food, services, and especially office and residential space. In the highly inflationary six-year period prior to 1987, State-run hotels hiked their prices nearly twice a year on average, a practice that caused real inflation in rents of well over 100 percent in the short space of seven years. (This figure is adjusted to take into account the five devaluations of the renminbi during this period.)

Although it is now virtually certain that Beijing will face a glut in accommodations in late 1989 or early 1990 followed by a general softening of prices, it is difficult to predict how far prices will fall. Prices will have to come down, but Chinese authorities are unlikely to permit the bottom to drop out of the market. The Beijing Pricing Bureau strictly controls prices at the State-run hotels, leaving the joint venture projects free to set their own rates. With this history of control, it seems unlikely that any serious price competition will occur between State-run facilities. However, the pricing authorities very recently

granted the State-run facilities greater leeway to offer discounts and negotiate lower rates with long-term tenants, although they may be rather reluctant to take advantage of this privilege.

The Beijing tourism and pricing authorities are also studying the feasibility of setting a lower limit on the rates for expatriate accommodations, but have not yet decided whether joint ventures will be bound by this limit. In an interview with the author, Bo Xicheng, director of the Beijing Tourism Bureau, said that "while 'healthy' price competition within certain limits will be tolerated and even encouraged, the municipal authorities will not countenance the appearance of 'predatory' price slashing, in which one project 'upsets the entire market' by deliberately setting its prices at very low levels simply to seize market share from a number of other projects." However, Bo also acknowledged that setting price floors would be a fairly complex matter that would require time and study, since each project has to be considered individually on the basis of quality standards, newness, the completeness of its facilities, and the desirability of its location.

Although a major decline in prices is still about two years off, some signs are already pointing to a softening of the expatriate accommodations market in Beijing. The rapid inflation in hotel rates that occurred from 1980 to 1986 has virtually ground to a halt. Bo believes that tariffs in the city's State-run hotels, which were frozen throughout 1987, will remain at present levels throughout 1988. Given continuing inflation in the prices of goods and services, Bo regards the hotel price freeze as tantamount to a reduction in rates.

Also significant are the special off-season discount rates that went into effect for the first time in Beijing during the summer of 1987. Virtually all of Beijing's nine joint venture hotels and three expatriate residential complexes have vacancies in the rooms reserved for long-term tenants, ranging from 15 rooms to more than 50 rooms. The management of these hotels is now more flexible in negotiating discounts for long-term leases than they were a year ago, with discounts offered ranging from 15-30 percent off the base price. Some hotels are even waiving the service fees commonly charged by joint ven-

3rd quarter	Hangong Hotel 450 units	East Palace Apartments 120 units	
	Huayang Hotel 506 units		
	Nanyang Hotel 518 units		
	Novotel Yuyang Hotel 600 units		
4th quarter	Intl Club (new annex) 440 units	Jinguang Center 264 units	Intl Club (new annex) 12,500 sq.m.
	Sichuan Building* 500 units	Sichuan Building* 500 units	Sichuan Building* 23,400 sq.m.
	Xinqiao Hotel (new wing) 800 units	Capital Building (Jingcheng Daxia) 341 units	Jinguang Center 130 units; 16,000 sq.m. Capital Building 35,000 sq.m. Fortune Mansion 130 units; 25,000 sq.m.
1990 1st quarter	Asian Games Complex* 1,200 units	Asian Games Complex* 500 units	Changfugong Complex 13,500 sq.m.
	China World Trade Center 1,043 units	China World Trade Center 448 units	China World Trade Center 70,000 sq.m.
	Chang'an Hotel (in Changfugong Complex) 550 units	Chang'an Hotel (in Changfugong Complex) 115 units	Huawei Center 20,000 sq.m.
	Beiwei Hotel (new wing) 478 units	Garden Villas 389 units	New Century Hotel 200 units
	New Century Hotel 960 units	Huawai Center 75 units	
	Parry Broadcast Relay Center 300 units		
2nd quarter	Pacific Hotel 300 units	Intl Service Center 621 units	
	Taiwan Guesthouse 300 units		
	Shanyuan Hotel 400 units		
	Tianlun Hotel 500 units		

* Wholly Chinese-backed projects

SOURCE: Author's research.

PROJECTS TO START CONSTRUCTION SOON

Commencement date	Building	Units
1st quarter 88	Daguanyuan Entertainment Center	300 hotel units
	Sanquan Apartments	128 apartments
	Jinghua Mansion	450 hotel units
2nd quarter 88	Garden Hotel	301 hotel units and an office building
4th quarter 88	Fuhua Hotel	250 apartments
NA	American Express Building (Yuntong Daxia)	525 apartments and 4,630 sq.m. of commercial space
	Lufthansa Commercial Center	600 hotel units, 250 apartments, and 29,000 sq.m. of office space
	International Village	480 apartments and townhouses

tures. The State-run hotels, less strongly motivated than the joint venture hotels, have been slower to follow suit.

Unexpected levy for utilities . . .

Investors who had hoped to recoup serious cost overruns in their projects by charging higher rents will be disappointed to find that the price trend will turn irrevocably downward during the second half of 1989 and become even more pronounced toward the middle of 1990.

Even worse, many of the larger projects still under construction will face substantial cost overruns, due to the levying of the "Four Utilities Fees," authorized by the State Council in 1986 and implemented by Beijing Municipality in the first quarter of 1987. This directive applies to all new projects, both with foreign investment and wholly Chinese-backed, productive and nonproductive. The levy attempts to shift the burden of paying for the new infrastructure required by these projects from the city to the projects themselves. In theory, existing enterprises that plan to tap into the new 'infrastructure' will also be presented with a portion of the construction bill.

The "Four Utilities Fee" is calculated based on the amount of water, gas, heating, and sewage drainage a project will use. The levy is used to repay the municipal government for building the infrastructure required before the actual project construction starts. However, when the project commences using the new utilities, it is billed at the same rate as any other municipal end-user—most of whom did not have to pay a utility fee.

In the case of Kumagai Gumi's de-

lux Palace Hotel project, now rising in Goldfish Alley off Wangfujing Street, this will mean being stuck with 25 percent of the ¥100 million price tag for expanding utility supplies to the entire neighborhood. The remainder will be paid by a number of other joint venture hotels going up in the immediate vicinity.

Foreign backers of real estate projects now under construction are upset—not so much about the levying of this fee—but about the retroactive application of this tax to projects dating back as early as 1985. Beijing Municipality claims it does not have enough money to pay for the massive amounts of new infrastructure required to support the real estate projects and has no choice but to assess the fee.

Virtually every major joint venture

real estate project that has broken ground is now negotiating with the Beijing Construction Commission to have the city share a larger part of the financial burden of the Four Utilities Fees. They argue that the large tax alters the underlying feasibility of their projects and is unfair since they could not have predicted these additional fees when they first decided to invest. But Wang Ruoshan, deputy director of the Beijing Foreign Economic Relations and Trade Commission, believes that some sort of fair compromise that is acceptable to both sides will be reached.

. . . and other problems

Even if a compromise is reached on utility fees, joint venture real estate projects face other problems. Many of the latecomer joint venture projects are finding it increasingly difficult to arrange financing from wary banks. Some banks as a matter of internal policy, have frozen all loans to accommodation projects, perhaps reflecting growing disquiet on the part of banks that are heavily involved in more than one major Beijing real estate development project.

However, the organizations that are presumably the most nervous about the coming glut are the financial institutions that provided guarantees for the loans to large hotel projects. The guarantors of many of the outstanding loans for Beijing's joint venture real estate projects are PRC financial institutions—primar-

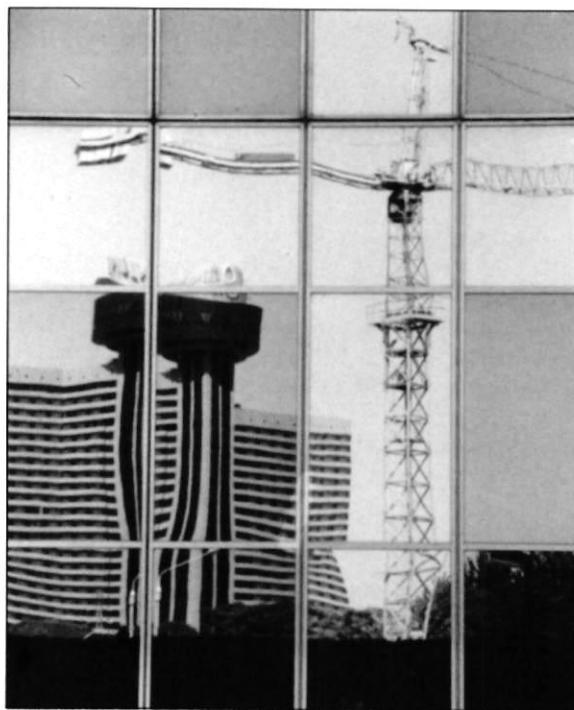


Photo by Matthew Mouw

The Kunlun Hotel as mirrored in the panels of the Sheraton Great Wall Hotel.

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ily the Bank of China, CITIC, and Beijing International Trust and Investment Corporation. Many of these organizations feel overextended and are no longer willing to guarantee 100 percent of the loan. Indeed, in the largest project now under construction in Beijing, the \$380 million China World Trade Center, MOFERT had its two most financially secure foreign trade corporations, SINO-CHEM and SINOTEX, provide guarantees for the \$280 million in loans.

The ranks of new real estate projects opening by 1990 are being thinned even further by construction delays of up to a year or more. These delays are due to a variety of factors including: shortages of critical construction materials, disputes over the domestic or foreign sourcing of these materials, disputes with the municipal authorities over infrastructure-related cost overruns, lack of skilled construction workers and time required to train semi-skilled laborers, and disputes between the Chinese and foreign partners over the management of the completed projects.

Another pressing problem these projects face is a shortage of skilled construction workers in Beijing to

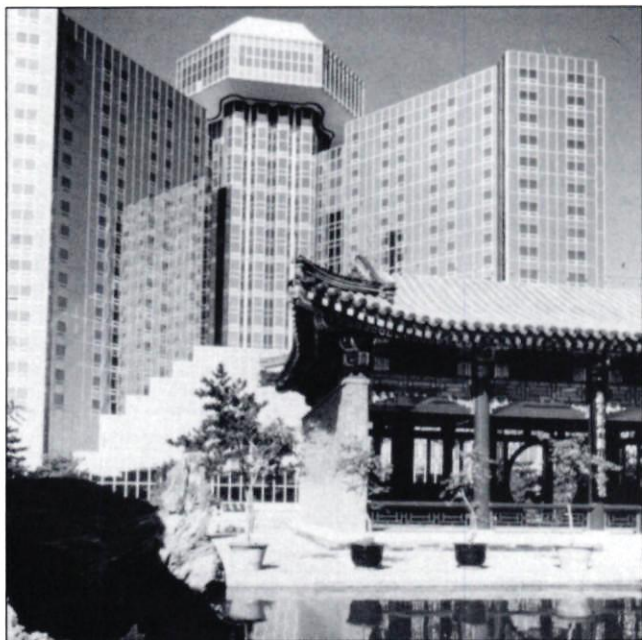
undertake high-quality projects. Until 1985 many of the projects turned to skilled construction teams from outside of the city. However, in 1985 when Beijing authorities perceived a threat to their own labor market, they stipulated that out-of-town construction workers could only be hired on an individual and temporary basis. At that time a compromise was worked out to bring in skilled, out-of-town workers for the most difficult tasks while leaving the bulk of the work to local laborers. But the growing number of projects beginning construction has forced Beijing to rethink the policy. Hiring entire out-of-town construction crews is now allowed—with prior approval from the Beijing Construction Commission.

The changing face of Beijing

This tremendous burst in construction activity will permanently alter the face of the city. Over half of the real estate development projects under construction are concentrated in the East City and Chaoyang Districts. When all the construction is done, four loosely defined clusters will constitute the future hubs for foreign commercial and residential

activity. They include: a narrow 2-kilometer section of Jianguomenwai Avenue that stretches from the present Jianguomenwai Overpass to the East Third Ring Road that will offer 130,000 square meters of office space; a small rectangular area of roughly 1x2 kilometers adjacent to the Palace Museum's eastern wall in the East City District-Chaoyang Area that will be a center for hotels catering to the up-market tourist industry; a 2-kilometer radius around the Sheraton Great Wall Hotel that will include many residential accommodations and offices; and a "suburban" section near the Lido Hotel running along Jichang (Airport) Road that will offer detached and semi-detached suburban-style homes in at least one self-contained expatriate residential community.

Although Beijing's skyline may be altered significantly, expatriates will have no trouble recognizing the generally lower rents and the wider choice of standards and locations for offices and accommodations. When the dust begins to settle toward the end of 1990, Beijing should become a much more convenient place for expatriates to live and work. 完



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Tax Guide

How recent changes may affect your liability in China

Timothy A. Gelatt

When China began to create a legal system to regulate foreign business activity in the late 1970s, taxation was among the first subjects on the agenda. It soon became apparent that China would need new tax laws since the domestic tax system was largely unsuitable for foreign business operations. In 1980 China promulgated basic statutes to tax individuals and equity joint ventures. A tax law governing foreign enterprises in China followed a year later.

As China's business environment has become more complex, the General Tax Bureau under the Ministry of Finance and its local counterparts have issued a steady stream of notices interpreting provisions of the various laws and rulings on specific cases. With seven years of practical experience applying and interpreting these tax laws, China now has a track record worthy of review. And although not all questions have been answered, the following survey of recent developments will show that China's tax authorities have done an impressive job of filling the gaps in the basic tax system created in the early 1980s.

INDIVIDUAL INCOME TAX

China's Individual Income Tax Law (IITL) hits closest to home for the foreign business community. And since its promulgation in September 1980, the IITL has been the subject of considerable misunderstanding.

First, there was a great deal of confusion over who was subject to the IITL. The IITL and its implementing regulations indicate that individuals employed by foreign companies without permanent establishments in China are *not* subject to tax unless

they stay in China for longer than 90 "consecutive days" in any tax year. But as foreign taxpayers quickly discovered, Beijing and other local tax authorities did not interpret the word "consecutive" literally. A foreigner whose visa allowed him to remain in the country for more than 90 days was essentially regarded as being present in China for the duration of his visa—regardless of how much time he actually spent there. Consequently, a business executive who repeatedly visited China on, for instance, a six-month, multiple-entry visa, could theoretically be taxed on his salary for the entire six months—although this rule was probably applied only rarely.

In a February 1986 notice, the Ministry of Finance modified its position and gave foreigners a somewhat clearer basis on which to assess their tax liability. A foreigner visiting China on a visa valid for more than 90 days is now exempt from tax if the total cumulative number of days he spends in China does not exceed one-third of the period of his visa. If he spends more than one-third of the period in China, his salary income will be taxable from the date of his first entry into China until the date of his final departure on that visa.

Local tax officials in different Chinese cities still disagree on the status of the foreign visitor who meets the one-third test but whose total stay fails to reach the statutory 90 days—for instance, the holder of a six-month visa who stays a total of 60 days. In recent interviews, local officials in Beijing said the 60-day visitor would be taxable; their Shanghai

Timothy A. Gelatt, a lawyer with the international law firm of Paul, Weiss, Rifkind, Wharton, and Garrison, specializes in business with China.

counterparts disagreed. The Ministry of Finance needs to clarify this remaining ambiguity for those individuals not already covered under the terms of a bilateral tax treaty.

As for US residents who have been subject to the US-China Tax Treaty since January 1, 1987, they are exempt from tax if actually present in China for less than 183 days in a given tax year—as long as their salaries are not paid by a Chinese company or a permanent establishment of a foreign employer in China.

Another encouraging development last year was an easing of the burden on individuals who work part time as their company's registered representative in China and part time in another office—a not infrequent arrangement for companies with offices in both Hong Kong and China who rotate personnel back and forth. Individuals paid separate salaries for their work in and outside China are now permitted to pay PRC tax just on their China salaries—instead of on their entire salary income, which China's tax authorities previously insisted was all China-source income. Even an employee paid only one salary may qualify to be taxed only on the portion attributable to the time spent working in China, if the employer can furnish evidence of his status as a part-time resident. Careful tax planning should now enable companies rotating employees in and out of China to save their personnel considerable Chinese taxation.

The relatively high tax rates under the IITL have led many foreign residents in China to demand that their employers pay the tax on their behalf. The Ministry of Finance clarified the tax consequences of this practice in a 1986 document, stating that when companies pay individual income tax on behalf of their employ-

ees, "this should in all cases be converted into taxable income for the computation and payment of individual income tax." The document provides a "gross-up" formula for the calculation of personal tax in this situation.

In yet another welcome move, China recently lightened the burden on US and other foreign taxpayers who, in light of the renminbi's devaluation and other factors, were feeling an increasingly sharp bite from the IITL. In a "provisional regulation" effective August 1, the State Council ruled that all foreigners subject to tax on wage and salary income under the IITL—both those stationed long-term in China and temporary business visitors—will pay half the amount of tax they would otherwise owe under the IITL. Tax liability will continue to be determined under the normal rules at the IITL's 5-45 percent rates, and the resulting figure will simply be cut in half.

Although less urgent in light of this recent tax cut, foreign taxpayers would also welcome an increase reportedly under consideration in the monthly "standard deduction" from ¥800 to ¥2,000. Under the IITL, an individual may normally not deduct any expenses from gross income; he simply excludes the first ¥800 of his income for the month. Although the tax authorities have been known to make exceptions to this rule in "extraordinary" circumstances (such as one foreign representative's alimony payments to an ex-spouse), this system prevents taxpayers from deducting many standard expenses—such as interest and medical expenses—allowable under the US and other tax systems. An increase in the amount excludable from monthly income would at least help to offset the tax burden this system imposes.

REPRESENTATIVE OFFICES

The biggest *cause célèbre* on the PRC tax front in the last several years has undoubtedly been the tax on foreign companies with representative offices in China. Although the 1981 Foreign Enterprise Income Tax Law (FEITL) includes representative offices within the definition of "establishments" of foreign companies in China taxed on a progressive basis, the Chinese tax authorities did not attempt to impose this tax on them

before 1985.

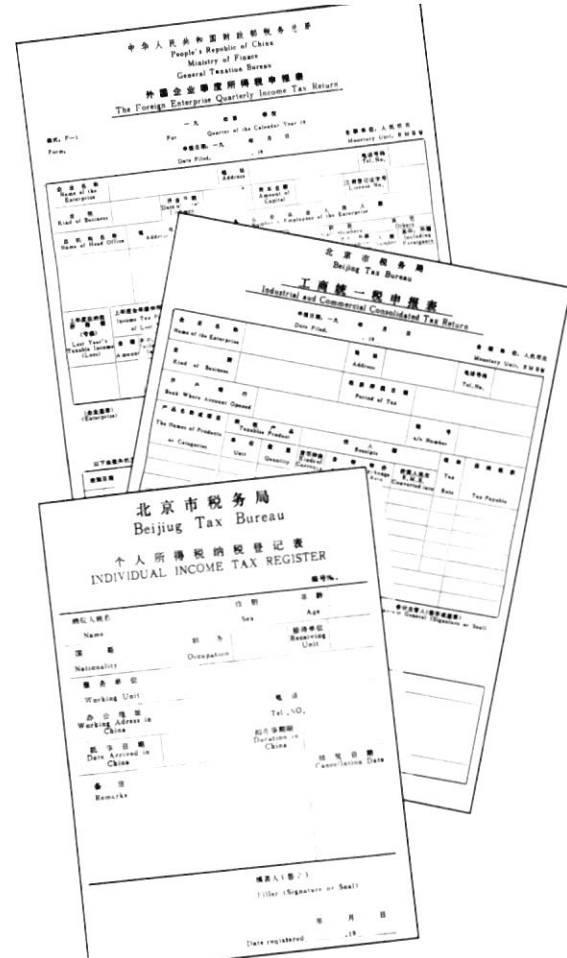
Theoretically, under China's registration rules, representative offices must confine themselves to liaison work. It is evident to any observer, however, that some companies registered as "representative offices" do engage in trading, provision of services, and other profit-generating activities.

China's tax authorities recognized this reality in May 1985 by promulgating new provisions on the taxation of foreign representative offices (the "Office Provisions"). The basic proposition of the Office Provisions is that any representative office providing more than liaison, research, and consulting services for its "head office" will be subject to the FEITL and the consolidated industrial and commercial tax (CICT), China's turnover tax on sales and service income. Offices performing only liaison work for their head offices on an uncompensated basis will remain exempt from taxation.

The Office Provisions immediately raised the issues of how "head office" would be defined and how taxable income of representative offices would be calculated. In the year following publication of the Office Provisions, further national and local tax rulings have answered these questions—although not always as foreign companies had hoped.

For one thing, the Chinese have defined "head office" narrowly as the corporate entity that actually establishes the representative office. In the early years of China's tax system, because of uncertainty as to what types and sources of foreign company income would be subject to Chinese tax, many companies established special China subsidiaries through which they channeled all of their China-related income. The idea was to isolate China income and shield the company's worldwide income from possible scrutiny by Chinese tax authorities.

As a result, many representative offices of US companies in China are, as a legal matter, the representative offices of their company's China subsidiary, although they may actually engage in business development and liaison for the ultimate parent company as well other affiliates within a large corporate group. The regulations' definition of head office means that companies with this structure are finding that their China offices



create Chinese tax liability under the Office Provisions.

China's definition of head office in the context of representative office taxation is consistent with tax practice in other countries and under many tax treaties. But the manner in which Chinese tax authorities have gone about determining the taxable income of these representative offices has been more problematic. The general principle of FEITL is that taxation of a foreign company should be based on net income (i.e., gross revenue minus allowable business expenses). If this standard were applied, many—if not most—foreign companies with representative offices would be able to demonstrate that the costs of operating the office exceed any income attributable to the services it provides. But the tax authorities have devised two other methods to determine taxable income that appear to have been applied in an inconsistent and often arbitrary manner. One is the so-called "deemed profit" basis of taxation, in which FEITL's graduated tax rates of 30-50 percent are applied to a fixed percentage of the office's gross revenues. Although this deemed profit percentage was reduced from the initial 15 percent to 10 percent last October, this approach still leaves many

companies paying more tax than they believe they would if allowed to deduct all their legitimate expenses.

The "cost plus method" of determining taxable income applied to some companies in Beijing, and to a lesser extent in other cities, has proven even more rankling. Under this system a tax is imposed based on a percentage of an office's expenses. Given the ever-increasing cost of operating an office in China, which many companies see at least in part as a disguised form of taxation, the imposition of tax on the basis of these costs has added insult to injury.

The emergence of these new rules for taxing representative offices has led a number of large multinational corporations to make organizational adjustments. Some companies, for instance, have developed service agreements between their China subsidiary and other affiliates under which the subsidiary in China is paid a certain commission for performing business services there. This arrangement is commonly accepted in other countries as the basis of taxation of multinationals, and has in some cases been accepted by local Chinese tax officials. Many companies believe the service contract approach results in a more reasonable basis for taxation than the Chinese deemed profit or cost-plus approach.

Some progress has also been made in reducing the taxes of service companies whose representative offices in China serve their clients, but whose home offices also do China work. Chinese tax law makes it clear that the place where income is received is irrelevant to its taxability in China. But companies in this position have argued that much of their China-related income is not only received outside of China but is actually *generated* outside of China, and thus should not be considered China-source income for purposes of PRC tax.

The tax authorities have responded by allowing a pro-rata exemption from Chinese tax for companies that can document the fact that part of their China business is performed outside of the China office. The Ministry of Finance has generally instructed local tax offices to make a 50-50 allocation, although a company may theoretically be taxed on an even lower percentage of its total China-related income. Companies in this situation face stringent

bookkeeping requirements, but may well be rewarded for their efforts by a decreased tax burden.

TECHNOLOGY TRANSFER

One of the most vexing problems for companies licensing their technology to China has been the 20 percent withholding tax on "fees for the use in China of proprietary rights," a concept that encompasses not only royalties or license fees paid to foreign licensors for patents or other proprietary technology, but also fees for technical training, services, and documentation. Already dissatisfied with the small amount of remuneration Chinese licensees are willing to pay for technology, many foreign companies regard the disappearance of 20 percent of their income into the Chinese tax coffers as the straw that broke the camel's back in failed technology transfer negotiations.

Recognizing in 1982 that the withholding tax was hindering China's efforts to attract advanced technology, the finance ministry provided for a reduction in the tax to 10 percent for certain types of technology, and a total exemption if the Ministry of Finance deems the technology "advanced" and offered on "preferential terms." And in 1984 the tax rate in the special economic zones and the 14 coastal cities was reduced to 10 percent across the board and local authorities were given the right to grant a total exemption if either of the above criteria is met.

The trouble is that foreign companies are usually still not able to obtain an advance ruling from the local or central tax authorities as to whether, and at what rate, income from a technology transfer contract under negotiation will be taxed. This presents the company with the dilemma of being forced to agree to a royalty or other fee arrangement without knowing how much of the fee will go to the Chinese treasury.

Some companies have obtained a "condition precedent" clause in their contract, under which the contract will only take effect if tax exemption is granted. Chinese negotiators, however, are generally loath to accept this provision. Others solve the problem by quoting a technology fee that assumes the highest possible rate of taxation, but then provide a lower fee if a lower tax rate or complete tax exemption is obtained. The

Ministry of Finance recognizes these administrative problems and claims that it is only a matter of time before China's tax offices will be adequately staffed to provide a more effective advance ruling system.

In the meantime, since January the US-China Tax Treaty has provided significant relief to US licensors. The treaty reduces the rate of tax on technology fees to 10 percent across the board, allowing for the possibility of further reduction or exemption under Chinese domestic tax legislation. One concern was that only royalties or other fees paid for technology itself are normally eligible for reduced withholding taxes under bilateral tax treaties. Technical service and training fees usually are not. For the moment, however, China's tax authorities have taken a more liberal position, and consider the treaty's 10 percent reduction applicable to all technology-related fees, including those for services and training.

Training is another area in which China's tax policy has taken foreign companies by surprise. Under a license contract, the licensor typically provides some training to Chinese personnel at the foreign company's plant, and also sends foreign technicians to train workers at the Chinese plant site. Many US licensors assumed that only fees for the latter training would be considered China-source income and taxable in China. In 1986, however, the Ministry of Finance reaffirmed a longstanding—though not always consistently applied—policy that all fees for the training of personnel in connection with a technology transfer to China, including those for training outside China, should be "considered as and taxed together with fees for the use of proprietary technology."

China's tax authorities do, however, make a distinction between fees paid under a technology transfer contract that relate to equipment sold under the contract and fees paid for technology transfer per se. Income from equipment sales, earned by a foreign company without an establishment in China, is exempt from taxation. So, too, is income related to the installation of the equipment, instruction in its operation, and related designs and other documentation. Companies signing contracts with China that include both an equipment sale and technology transfer should therefore try to sepa-

rate different elements of the fees payable under the contract. In the absence of any such breakdown, the Chinese will usually tax the total.

FOREIGN CONTRACTORS

Foreign companies that contract to provide specific services in China, such as offshore oil-related services and construction work, have also had their tax position in China clarified in recent years. A 1983 regulation gives two types of contractors exemption from the progressive income tax of FEITL through 1990: companies that provide support services such as installation, construction, and training to a Chinese entity that has purchased the company's plant equipment, and companies providing on-site technical instruction, consultation, and other technical services to Chinese enterprises to upgrade their existing technology.

Other foreign contractors are usually subject to both the FEITL and CICT on their net income. Although there is no minimum period within which contracted projects can be completed without creating a taxable establishment, the US-China Tax Treaty requires that projects continue for a period of more than six months before they are taxed. A 1986 Ministry of Finance notice on the interpretation of tax treaties specifies that the six-month period is to be calculated beginning from the date the first services under the contract are performed, including preparatory activities, until the date the entire project is complete and all equipment delivered. If operations stop temporarily for any reason, the period of nonactivity is not deducted in determining whether the six-month test has been met.

Chinese tax authorities have recently granted a welcome special exemption for foreign companies that contract with Chinese units for the design of construction, engineering, and other projects but perform all of the design work outside of China and merely submit the drawings after completion. In this situation, even though the foreign company may send personnel to the Chinese site to carry out inspections and collect information, the Chinese will exempt all of the design income from taxation. If a foreign design contractor provides some services on the Chinese construction site and some out-

side of China, and can provide accurate documentation to this effect, it will be taxed only on the services performed in China.

Short-term contractors often have difficulty demonstrating their actual expenses in order to calculate tax on a net income basis. Like those of other countries, China's tax law provides for a deemed profit system to cover companies in this position. For contractors in most service fields, the rate applied to profits for purposes of determining taxable income has generally been 10 percent. Recently, however, while improving the position of design contractors in some respects, the Chinese increased their deemed profit rate to 15 percent.

Contractors in one of the most successful forms of foreign business activity in China today—the hotel management industry—are also taxed more heavily than others. Some had hoped to avoid being labeled as “establishments,” preferring to be taxed on a straight withholding basis at 20 percent of their revenue from management contracts.

But in 1986, as was to be expected, the Ministry of Finance decreed that foreign management companies operating in China would be treated as having taxable establishments. Those unable to prove their actual expenses have a hefty deemed profit rate of between 20 percent and 40 percent applied to their revenue for the purpose of determining taxable income. Local tax authorities determine the precise rate of deemed profit in light of the profit rates of “similar” local businesses. The fairness of this approach will need to be evaluated.

LENDING AND LEASING

Bank lending to China continues to be hampered by the withholding tax imposed on interest earned by foreign lenders from loans to China. Loans to certain Chinese institutions at extremely preferential interest rates (normally a fraction above LIBOR) are exempt from the withholding tax. Most commercial banks, however, find it just as unattractive, if not more so, to lend at such a low profit margin as to lend at a higher rate and absorb the withholding tax. The US-China Tax Treaty provides some relief to American lenders by reducing the tax on interest from 20 percent to 10 percent, but this still does not resolve the problem in many



cases. The finance ministry has also tried to alleviate the difficulty by reducing the tax to 10 percent for any foreign lenders who sign loan contracts between 1983 and 1990.

In international loan transactions, the borrower commonly agrees to pay or reimburse the lender for any withholding tax imposed by the borrower's country on interest payments. Although some lenders have obtained such clauses in their loan agreements with China, the Ministry of Finance takes the position (similar to its view on the technology transfer tax) that this practice is contrary to Chinese policy. A Ministry of Finance official recently stated that if a Chinese borrower pays tax on behalf of a foreign lender, the foreign lender will be subject to withholding tax on the total of the interest income plus the amount of tax paid on its behalf by the Chinese party.

Leasing, meanwhile, continues to be an attractive way for Chinese entities to obtain big ticket items such as airplanes and heavy machinery without the need for a large, one-time foreign exchange outlay. Taxes on the interest component of lease fees have been reduced to 10 percent for deals signed through 1990. A number of aspects of taxation of leasing, such as which party to a lease con-

TAXES ON COMMON BUSINESS TRANSACTIONS

	FOREIGN ENTERPRISE INCOME TAX LAW (FEITL) (1981)	JOINT VENTURE INCOME TAX LAW (JVITL) (1980)	CONSOLIDATED INDUSTRIAL AND COMMERCIAL TAX REGULATIONS (CICT) (1958)	INDIVIDUAL INCOME TAX LAW (IITL) (1980)	PROVISIONAL REAL ESTATE TAX REGULA- TIONS (1986)
1. OFFSHORE SALES TO CHINA			Chinese importer pays on import.	Sales personnel may be taxable if in PRC over 90 days without 30-day absence or if have multiple entry visa valid for over 90 days, unless total number of days in China does not exceed one-third of the visa period; Americans exempt under US-China Tax Treaty if in China no more than 183 days (provided salaries not paid by a company resident in China or permanent establishment of foreign company in China).	
2. TECHNOLOGY TRANSFER	20% withholding tax on gross fees; certain types of technology may receive 10% reduction, with local tax office approval, or exemption if technology advanced and preferential terms; withholding tax reduced to 10% in SEZs and 14 coastal cities; US-China Tax Treaty reduces withholding tax for American licensors to 10%.		Chinese importer may pay, though exemptions potentially available.	Personnel on site taxable under above rules.	
3. LENDING	20% withholding tax on gross interest; 10% for contracts between 1983-90; exemption possible if rate and borrower qualify, with local tax office approval; US-China Tax Treaty reduces withholding tax for American lenders to 10%.	Joint venture banks subject to tax on interest and other income.	Joint venture banks subject to tax on interest and other revenue.		See entry #10 for joint venture banks.
4. LEASING	20% withholding tax on pure rentals; for lease-sales, principal exempt, interest taxed at 10% for 1983-90; interest exempt if rate qualifies, with local tax office approval; service charges taxed at 10%.	Joint venture leasing companies subject to tax.	Joint venture leasing companies subject to tax.		See entry #10 for joint venture leasing companies.
5. REPRESENTATIVE OFFICES	30%-50% progressive tax, including 10% local tax, on net income if office does more than provide liaison, research, and consulting services for its head office; if costs and expenses not adequately documented company will be taxed on "deemed profit" or "cost plus" basis.		Tax on imports of office equipment, etc.; tax on service income, etc., if office does more than provide liaison, research, and consulting services for head office.	Registered representative taxable on total salary income, 5%-45% progressive rates.	
6. CONSIGNMENT SALES AND SERVICE CENTERS	30%-50% progressive tax if independent place set up solely or primarily to sell or service foreign company's products, parts, etc.; no tax if no independent place.	If service center organized as equity joint venture, subject to tax.	Tax on sales and service income if independent place and consignment goods sold at foreign company's price or price agreed with Chinese; no tax if goods purchased by Chinese and resold at Chinese own price.	Personnel on site taxable under above rules.	Chinese party may pay; if equity joint venture, see entry #10.
7. COMPENSATION TRADE	Interest exempt with local tax office approval; technology fees paid in kind may be exempt if technology advanced and preferential terms.		Chinese subject on import but exemptions may be available.	Personnel on site taxable under above rules.	Chinese party may pay.

(J. V. Seal)

Responsible Officer (Signature or Seal)

Accountant General (Signature)

	FOREIGN ENTERPRISE INCOME TAX LAW (FEITL) (1981)	JOINT VENTURE INCOME TAX LAW (JVITL) (1980)	CONSOLIDATED INDUSTRIAL AND COMMERCIAL TAX REGULATIONS (CICT) (1958)	INDIVIDUAL INCOME TAX LAW (IITL) (1980)	PROVISIONAL REAL ESTATE TAX REGULA- TIONS (1986)
8. CONTRACTED PROJECTS (e.g., sub-contractors)	30%-50% tax on net income; exemptions and reductions and local tax exemption as for cooperative ventures; various deemed profit rates may be used instead of net income as taxation basis in some cases; exemption through 1990 for services with equipment sales and services for reform of Chinese enterprises; US-China Tax Treaty requires projects to continue for more than 6 months before subject to tax.	If project done as equity joint venture, subject to tax.	Imports taxable; revenue taxable—3.03% typical rate for service revenue including 1% local surtax; exemption through 1990 for services with equipment sales and services for reform of Chinese enterprises.	Personnel taxable according to above rules.	Chinese party may pay; if equity joint venture, see entry #10.
9. COOPERATIVE VENTURES (Contractual Joint Ventures)	30%-50% tax on net income of foreign company including 10% local tax; 1st profit-making year exempt and 2 following years 50% reduction if venture for 10 years or more and in certain low-profit areas; local 10% tax exemptible if annual profit under ¥1 million with local government approval; 50% reduction if JV exports 70% or more of production value in one year;* 50% reduction for 3 additional years if technologically advanced;* foreign investors who reinvest profits in China eligible for 100% refund of tax paid on reinvested amount if profits reinvested in export or technologically advanced enterprise. ¹		Imports taxable but exemptions for various items, e.g., certain petroleum-related equipment; sales taxable; all exports except crude oil, finished oil products, and others stipulated by the State are exempt.*	Personnel taxable.	Chinese party may pay.
10. EQUITY JOINT VENTURES		33% on net income including local 10% surtax; possible exemption of surtax with local government approval; first 2 profit-making years exempt and 3 following years 50% reduction if JV for 10 years or more; reinvestment of profits for 5 years gets 40% tax refund; 10% tax on repatriated profits of foreign party but exempted for export and technologically advanced enterprises;* 50% reduction if JV exports 70% or more of production value in one year;* 50% reduction for 3 additional years if technologically advanced enterprise;* reinvestment of profit for 5 years in an export or technologically advanced enterprise gets 100% tax refund. ¹	Imports taxable but exemptions for items imported as investment, later imports of items of which supply not guaranteed in PRC, with approval, and materials for production of exports; all exports except crude oil, finished oil products, and others stipulated by the State are exempt;* for domestic sales, may apply for reduction or exemption for fixed period.	Personnel taxable.	JV pays on buildings contributed to the JV by Chinese party; 1.2% of original value, less a "residual" of 10%-30%.
11. WHOLLY FOREIGN-OWNED ENTERPRISES	30%-50% tax on net income including 10% local tax; 50% reduction if enterprise exports 70% or more in one year;* 50% reduction for 3 additional years if technologically advanced enterprise;* foreign investors who reinvest profits in China eligible for 100% refund of tax paid on reinvested amount if profits reinvested in technologically advanced enterprise. ¹		No specific exemptions for imports; all exports except crude oil, finished oil products, and others stipulated by the State are exempt.*	Personnel taxable.	Enterprise may pay on buildings; 1.2% on original value, less a "residual" of 10%-30%.

* Provisions of the State Council for the Encouragement of Foreign Investment ("22 Articles"), supplemented by national and local implementing rules.
¹ In some areas, export and technologically advanced enterprises are exempt from local tax for fixed periods.
 NOTE: This chart does not reflect special tax treatment in the SEZs and 14 coastal cities.

tract may enjoy depreciation deductions, remain to be clarified.

JOINT VENTURES

The Chinese tax authorities have tinkered extensively with the basic system of taxation for equity and contractual joint ventures to fill in gaps, answer questions, and generally make the system more sophisticated. The results have often, though not always, benefited foreign investors.

Both equity and contractual joint ventures, as well as wholly foreign-owned enterprises, were beneficiaries of a number of tax preferences introduced in China's Provisions for the Encouragement of Foreign Investment, or "22 Articles," issued last October. The 22 Articles, as supplemented by detailed rules of January 1987 on tax issues, offer new incentives to export-oriented and technologically advanced enterprises above and beyond those already available under the existing tax laws.

First, foreign investors in these two types of equity joint ventures will be exempted from the 10 percent withholding tax normally imposed when the foreign investor remits its profits abroad. The 22 Articles also expand upon the existing incentive for foreign investors who reinvest their profits in China for at least five years. The Joint Venture Income Tax Law (JVITL) provides a rebate of 40 percent of the amount of joint venture tax previously borne by the foreign investor on the amounts it reinvests. The 22 Articles increase the rebate to 100 percent if profits are reinvested in an export-oriented or technologically advanced enterprise. Under the JVITL, the reinvestment rebate is only available if profits are reinvested in the same equity joint venture, another existing equity joint venture, or used to form a new equity joint venture in China. But a February 1987 Ministry of Finance notice extends the tax refund to foreign investors who reinvest their profits in contractual ventures or wholly foreign-owned enterprises as well.

The 22 Articles grant a 50 percent reduction in the normal national income tax rate to enterprises that export 70 percent or more of their "production value" in any given year. They also give technologically advanced enterprises three years of half-rate taxation in addition to any tax reduction period that may al-

ready apply under existing tax law.

Both the JVITL and the FEITL provide for local taxes in addition to the national income tax. Under the JVITL, the local tax is calculated as a 10 percent surcharge on the national tax rate—which is 30 percent outside of the SEZs and other special areas. The FEITL, which applies to investors in contractual and wholly owned ventures, imposes a 10 percent local tax on net profits on top of the 20–40 percent progressive rates that go to the national treasury. Many of the local investment provisions that have appeared in the wake of the 22 Articles provide for reduction of or complete exemption from local tax for export-oriented and technologically advanced enterprises for specified periods of time. Although taxation has never been the most important basis on which foreign companies make their investment decisions, the addition of numerous local investment regulations to the existing structure of special tax incentives in the SEZs and coastal cities makes it increasingly important for investors to compare tax regimes when analyzing potential investment sites.

In addition to granting various new incentives over the past year, China's tax authorities have cleared up some questions about a major incentive long offered to equity joint ventures—the five-year tax exemption and reduction period. The tax holiday is to begin in the venture's "first profit-making year." The JVITL did not clearly specify whether an enterprise that had already enjoyed its first profit-making year and whose tax holiday period had thus started to run could stop the clock during years in which it was not profitable, and then enjoy the remaining years of its tax exemption and reduction period once it began to make profits again. A recent ruling clarified the provision: once the five-year period has begun to run, it continues to run consecutively even if nonprofitable years intervene.

Tax holidays are available only to joint ventures scheduled to operate for 10 years or more. Although most equity ventures satisfy this standard when the contract is signed, what happens if the enterprise is terminated ahead of time, having already enjoyed its tax holiday? The Ministry of Finance has recently responded that enterprises in this position will normally be required to pay back

taxes already forgiven or reduced. If, however, the early termination results from a natural disaster or some other event of *force majeure*, provincial tax authorities have the discretion to exempt the enterprise from repaying back taxes.

In addition to its clarifications on tax incentives, the Ministry of Finance has recently ruled on depreciation, deductibility of expenses, and related questions affecting the tax burden of all foreign investment enterprises. It has also shed some light on the tax consequences if an equity joint venture, itself a Chinese legal entity, enters into a joint venture with a Chinese domestic enterprise. This scenario has already come to pass in the case of "umbrella" joint ventures, several of which exist in China. In this arrangement, a foreign and Chinese entity establish a joint venture holding company, which in turn forms several different joint ventures with Chinese entities. The theory is that some of the subsidiary ventures will sell domestically and some will export, enabling the holding company to achieve an overall balance of foreign exchange.

Strictly speaking, a joint venture between an existing equity venture and a Chinese entity would not qualify as an equity joint venture for purposes of the JVITL. Therefore, foreign companies considering these umbrella arrangements have been concerned that the resulting enterprise would be taxed at Chinese domestic income rates, which are generally much higher than the JVITL's overall 33 percent. An October 1986 Ministry of Finance notice, recognizing the usefulness of cooperative business between domestic enterprises and joint ventures, provides that, so long as the indirect percentage of foreign investment in the new joint venture entity is at least 25 percent (the minimum requirement for foreign investment in an equity joint venture), and the new enterprise is involved in a project "whose development the State encourages," the new venture will be taxed under the JVITL and enjoy the same rates and incentives as those available to equity ventures.

Another source of controversy has been the question of what currency foreign investment enterprises must use to pay their taxes. Both the JVITL and the FEITL specify that foreign investment enterprises are to pay their

taxes in renminbi. But beginning in 1985 the Ministry of Finance stipulated that when a venture had income in both foreign currency and renminbi it would be required to convert an appropriate amount of foreign currency into renminbi to pay tax on the foreign currency income. This ruling provoked an understandable outcry at a time when most joint ventures in China were struggling to achieve a foreign exchange balance. To demand that a venture convert precious foreign exchange to pay its Chinese tax when it had more than adequate renminbi for the purpose was indeed unfair. Last July, in an apparent response to criticism of this policy, the Ministry of Finance changed its tune. Equity and cooperative ventures and wholly foreign-owned enterprises with both foreign and domestic currency income may now use renminbi to pay their taxes. Only ventures with exclusively foreign exchange revenue will have to convert the amount needed to pay their taxes in renminbi.

Given the increasingly complex Chinese tax system, many investors are anxious to include either in their investment contract or as an appendix a detailed rundown of the tax treatment to which the joint venture and the parties will be entitled—what the tax holiday will be, how license fees will be taxed, and so forth. But the Ministry of Foreign Economic Relations and Trade and its local counterparts have resisted attempts to include specific provisions on taxation in the contract or as an appendix. Their position is, understandably, that neither Chinese contract parties nor the investment approval agencies have the authority to dictate tax treatment. As in the case of technology transfer, the solution is for local and central tax authorities to develop an efficient advance approval system so that joint ventures can confirm their tax status before the final contract is signed.

In the meantime, one solution used recently in Shanghai is for the parties to execute a "memorandum" separate from the contract specifying the tax treatment they can expect to receive. In at least one venture, the Shanghai Certified Public Accountants' office has given its written approval to such a memorandum, although it is unclear what effect such an approval would have in the eyes of the local tax authorities.

WHOLLY FOREIGN-OWNED ENTERPRISES

Until 1986, wholly foreign-owned enterprises existed in China without the benefit of any legal regime. That situation was rectified with the 1986 publication of the Law on Wholly Foreign-owned Enterprises, but these projects continue to lack a specific body of tax legislation. The Ministry of Finance has indicated that it does not intend, at least in the near future, to formulate a special tax law for wholly foreign-owned enterprises. As a result, these enterprises are taxed under the FEITL, even though that law is intended only for branches and other "establishments" of foreign enterprises in China.

Wholly foreign-owned enterprises can, of course, take advantage of all of the various tax incentives available under the 22 Articles and their local counterparts. A recent Ministry of Finance ruling specifies that wholly foreign-owned enterprises that reinvest profits in China in an equity, cooperative, or wholly foreign-owned venture for at least five years will receive the same 40 percent tax refund available to investors in equity joint ventures. If the reinvestment is made in an export-oriented or technologically advanced enterprise, the 22 Articles raise the refund to 100 percent.

In developing a tax system for foreign business, China, like any other country in its position, is attempting to balance its right to participate in the gains accruing to foreign firms from their business in China with the need to encourage foreigners to provide the capital and technology that the country so urgently needs for its modernization program.

China has by no means achieved the perfect balance in its tax system. In a number of areas, both the system itself and its administration remain inadequate and, in some cases, unfair in the eyes of foreign companies. But China's tax officials deserve considerable credit for having developed as sophisticated a system and responded to as many concerns as they have in such a short time.

No tax system, of course, is free of defects. One can simply hope that China's tax authorities will become ever more sensitive to the delicate equilibrium they need to attain. The foreign business community could not ask for anything more. 完

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Hospital Care in China

John Lewis and Deborah Diamond-Kim

Money spent on health care went a long way in the China of the 1950s and 1960s. Combatting infectious disease—the leading cause of death at that time—depended on relatively inexpensive vaccines and on mass campaigns to improve public sanitation. Thus even modest government expenditures were enough to work miracles. By the 1970s most forms of infectious disease had been eradicated or brought under control, and major strides had been made in widening access to maternal and infant care. These measures catapulted average life expectancy rates from just 35 years in 1950 to 69 years in the 1980s—close to the rates of developed countries.

Today, Chinese health planners are learning that money does not go nearly as far as it used to. As in developed countries, a law of diminishing returns has begun to set in: the Chinese government now spends 3 percent of the national budget on health care, but the direct impact on mortality rates is no longer as impressive. For one thing, China's leading causes of death—cardiovascular disease, stroke, and cancer—are more difficult and expensive to treat than the infectious diseases of earlier years.

But this is not the only problem. Fundamental changes in the structure of China's economy and public administration are placing unprecedented strains on the health care system, especially in rural areas. Holes are beginning to appear in the social welfare net as the collective system of health insurance breaks down. And just as the ranks of the uninsured are swelling, so are those of the prosperous, who demand—and will pay extra for—more and better care. Making matters worse, decentralization is becoming synonymous with uncoordi-



nated and wasteful spending in the health care field.

Overcrowding at the top

The core of China's health care system since the 1950s has been the hospital referral network, under which local clinics refer cases they are unable to treat to the next highest level, and thereby efficiently ration hospital resources. Thus a complicated case may first be diagnosed at a village clinic, referred to a township hospital, passed on to county and district hospitals, and then referred to a municipal or provincial hospital, where the most highly trained personnel and advanced facilities are concentrated. Under this system, patients cannot get reimbursed by their employers for medical expenses without a referral slip from each successive rung of the referral ladder.

This system worked well enough in the past and kept most rural patients from streaming into overcrowded urban hospitals. But the number of uninsured peasants has grown, making it possible for those who can afford it

to simply bypass the more primitive lower-level hospitals. "The system of rural insurance has pretty much collapsed," says Dr. William Hsiao, professor at the Harvard School of Public Health. Collectives that were once required to provide health insurance, even when they could ill-afford it, are no longer obliged to do so under the household responsibility system. In 1975, for example, rural collective insurance covered 85 percent of all brigades. This figure dropped to 58 percent of brigades by 1981 and according to Hsiao, is now estimated to be less than 50 percent. Adding to the overcrowding is a hospital fee system so far below actual costs that many patients—both insured and uninsured—do not hesitate to go the better hospitals for sophisticated, but often unnecessary tests and treatment.

Rural emphasis in theory

Of course, more might choose to stay in lower-level hospitals if facilities were better—which is why, in 1980, China's Ministry of Public Health (MOPH) inaugurated a national program to upgrade the health facilities in each of the country's 2,100 counties. The program, which focuses on key township hospitals, involves renovation of crumbling 1950s-vintage buildings, upgraded equipment, and better training for hospital personnel. Called the "One-third Plan" because of the three-stage implementation process that is due to be completed in the year 2000, its emphasis on rural health care has been applauded by international development organizations like the World Bank and the World Health Organization (WHO).

But upon observing the actual implementation of this plan, these organizations are more critical. Western

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development specialists believe that funds for the program are going directly to the county level, with little trickling down to the township hospitals that are supposed to be receiving the most attention. "Not much is happening at the township level," said one World Bank official. "The One-third Plan has been largely a rhetorical entity." Many Western medical experts who follow development in China agree, noting how seldom the plan is mentioned now by Chinese health care officials.

It comes as little surprise, then, that the number of township hospitals has fallen from 55,549 in 1984 to around 48,000 in 1986. The reason is quite simple: not enough patients overall and too many who can't pay their bills. To attract patients, the township hospitals need to invest in renovation, retraining, and modern equipment, but to do so they need capital. And this they are not getting, for the most part—despite the One-third Plan.

Urban bias in reality

China has long been admired among developing countries for its emphasis on rural health care. In many other developing countries, leaders have yielded to vanity by funding a handful of showcase hospitals, often in the capital city. Yet in the countryside, even the most basic services are neglected.

But a closer look at China's health statistics in recent years shows that policy pronouncements aside, urban areas have been increasingly favored for attention and funding. For example, between 1976 and 1983 the proportion of State funding allocated to urban-based provincial hospitals almost tripled, while the proportion devoted to township hospitals and disease prevention stations declined by approximately one-third according to Dr. Gail Henderson, professor at the University of North Carolina School of Medicine. And, according to a 1984 study by the World Bank, State funds covered three-quarters of all health care expenditures in urban areas, but only one-third that of rural areas.

In addition, a number of urban hospitals are funded entirely by one ministry or large State-run enterprise whose employees and their dependents have full use of hospital services. Some, like the prestigious Nanfang Hospital in Guangzhou

(owned by the PLA), even attract patients from Hong Kong who are willing to pay good prices for combined Western and traditional health care.

In such circumstances, international development assistance has played a conspicuous role in modernizing rural health care. The World Bank, for example, has set up two rural health projects in China—one involving a \$32.8 million credit for a rural health and medical education project and the other a \$65 million credit and \$15 million loan to improve preventive care. Provincial and county governments provide about 60 percent of the remaining funds needed for these programs. In addition to making material improvements in rural health conditions, one of the main accomplishments of both programs, according to a World Bank official, has been instructing State and local officials in the management of health resources.

Easy vs. complex solutions

While international assistance can help create models in the area of rural health care, the responsibility for transforming the health care system in the Chinese countryside ultimately rests with Chinese public health officials at all levels. And one of the central problems right now, according to knowledgeable Western observers, is the lack of agreement in China on what to do: increase the number of hospital beds in the cities, where patients may wait up to 10 years for surgery, or improve underutilized facilities in the countryside, which will help relieve the burden on upper-level hospitals. At the moment, Chinese planners are pledging to do both. The trouble is that the number of hospital beds can be raised fairly readily by State expenditures under the Seventh Five-Year Plan, while the rural program depends on the less certain ability of the localities to raise funds and manage them well.

During the Seventh Five-Year Plan, for example, the State will build 16 general and two modern hospitals "with advanced equipment and techniques." One of the projects alone, the expansion of the Beijing Union Medical College hospital—already the main source of medical care for foreigners in Beijing and for many senior Chinese officials—will cost \$38 million. The investment in Beijing Union Medical, even if spread over a five-year period, looks sub-

stantial when compared to the \$470 million total that collectives, individuals, and the government spent to build medical facilities throughout the whole country in 1986.

Contrast this with the complex problems facing local health care authorities in the countryside. One of the most serious is the worsening shortage of well-qualified medical personnel who have joined their patients in the rural exodus to the cities. Even the para-professional barefoot doctors—trained for a period of three to six months—are leaving their jobs in droves to take up more lucrative work as farmers. Western observers already see signs that some epidemic diseases, notably snail fever, may be on the rise again because the number of para-professionals in preventive care is declining. Official health statistics show that in 1975, 58 percent of medical personnel in China, para-professionals as well as senior doctors, worked in the countryside, but this number slipped to just under 50 percent in 1984.

Even if medical personnel could be retained, the problem of financing capital construction and equipment purchases seems daunting. According to Chinese press reports, first aid equipment and X-ray machines are rare in most local clinics, where diagnosis usually depends solely on the aid of simple thermometers, stethoscopes, and blood-pressure measurements.

Needed: more rational health insurance

Funding health care programs in rural areas would be easier if there was less waste in the health care system. Among the biggest sources of waste are China's insurance programs. The Government Insurance scheme—financed by the Ministry of Finance—provides free hospital services for China's approximately 20 million government workers, while the Labor Insurance scheme financed by the Ministry of Labor and Personnel provides full coverage to some 90 million State enterprise employees and 50 percent coverage to their dependents. In 1985 free medical insurance for these workers cost the government ¥6.5 billion, roughly twice the 1981 cost.

This system must be credited with providing a degree of medical insurance coverage unparalleled in most Third World countries. But it is also a

huge drain on health care resources. State workers demand, and usually get, more prescribed medicine than they really need, expensive treatments, and longer stays in the hospital than are necessary. Neither MOPH nor any other organization has provided detailed medical guidelines outlining which expenses should be covered by insurance. Thus, a doctor may recommend sophisticated treatment techniques for his patients when cheaper remedies would be equally effective.

Making matters worse for central and local governments, and—increasingly—hospitals, is the enormous rise in the cost of health care over the past few years. One of the biggest strains is the increase in medical salaries—some 270 percent from 1979 to 1984—which MOPH still pays for. And the cost of supplies and equipment—also rising rapidly—is mainly absorbed by the hospitals themselves. Moreover, in the wake of decentralization, many hospitals are no longer receiving much financial support from the government.

To make up for lost government subsidies, some areas have introduced a two-tiered price system for certain hospital services. In Shanghai, for example, artificially low fees were raised and brought more in line with costs. Then, according to Dr. Henderson, uninsured patients are required to pay only 50 percent of the price that would otherwise be paid by insurance. But the main problem is that most hospitals still have not raised their fees. As a result, hospitals nationwide are operating at deficits reaching at least the hundreds of millions of dollars.

What is needed but is not yet in the works is a State-initiated plan to make the insured cover more of their health care costs and give them incentives to use the system more prudently. The vice director of MOPH's Planning and Finance Department, Song Liangzhong, says plans have been drafted this year, but not yet approved, to require the insured to pay 5 percent of their medical bills. But, in a sign that planners are concerned about the public reaction, Song noted that such re-

forms would be contingent on salary hikes.

Some Western observers think the only solution is to change the organizational responsibility for medical insurance from the ministries of finance and labor to MOPH, which would be better able to coordinate the needs of the insured and the uninsured, and to develop insurance programs for rural residents and the thousands of small collective enterprises that have not been able to afford insurance.

Shifting responsibilities for managing China's insurance program to MOPH would necessarily involve giv-



Photo courtesy of the American Hospital in Shanghai Foundation

Emergency room at the Shanghai Number 1 People's Hospital.

ing the ministry a bigger slice of the budget. This would be a welcome move since part of the MOPH's limited impact, especially in rural areas, is due to budgetary constraints. MOPH only controls about 1 percent of total recurrent health expenditures, and most of these funds are allotted to the 13 national medical colleges, two national hospitals, and research institutes under its control.

In the meantime, some localities are taking matters into their own hands. "Since 1984," says Dr. Henderson, "a lot of areas have begun to experiment with reconstructed insurance programs aimed at making patients more conscious of costs." Some of the means used include co-payments and reduced coverage for patients who seek treatment outside the locality. These methods are catching on, but have still not been adopted on a wide scale.

A question of priorities

When compared to the quality of health care delivery systems in other

developing countries, China's hospitals must be given high marks. So must the reforms in general, for with them the standard of living—and nutrition levels—have gone up substantially, reducing the susceptibility of the population to illness.

But the accolades that China deserves in the area of health care do not decrease the severity of the problems it faces. Perhaps the most fundamental is the problem of regulation. MOPH, in particular, requires a broader mandate and greater financial resources to coordinate various kinds of health care needs. MOPH is in the best position to set standards for what types of medical expenses should be covered by insurance. Only MOPH has the wherewithal to institute a stringent review process to ensure that hospitals do not order unnecessary or duplicative equipment from abroad. Such regulation is already an integral part of the health care system in the United States and many other countries.

As Teh-Wei Hu and Paul Woodward reveal in the following articles on medical equipment imports, some efforts are being made to reduce waste. But what is really required is a thorough cost-benefit analysis of alternative health care strategies. MOPH must improve methods for collecting basic health care data and then analyze the most cost-effective means of improving health care. Some of the most beneficial areas might include better emergency care services, improved hospital sanitation, strengthened diagnostic training at the local level, and closer monitoring of import needs.

State Council approval for a reorganized and strengthened MOPH is not likely at a time when the top leadership is deeply divided over price reform and subsidization of health care. Nevertheless, without concerted planning, health care benefits tend to gravitate naturally to the urban areas and to hospitals and patients that are already favored under the present system. And because most people still see health care as a welfare service the State is obliged to provide to all, growing inequities in this area could become a serious problem.

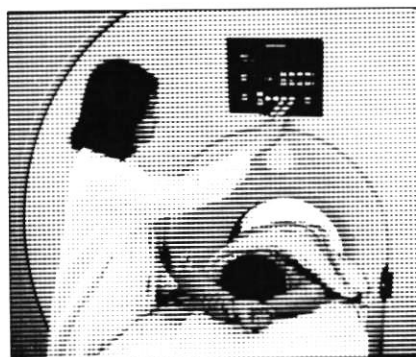
How China's end-users buy medical equipment and technology

Western Technology for China's Hospitals

Teh-Wei Hu

Since 1978 China hasn't so much opened its doors to foreign medical equipment suppliers as opened its floodgates. Although official Chinese statistics on total medical equipment imports are unavailable, other sources show that these imports have risen sharply within the past decade. US customs statistics, for example, show that China's annual imports of US medical equipment rose tenfold in value from just \$4.3 million in 1979 to \$45.9 million in 1986. The actual value could be much higher, since these figures do not include China's indirect purchases of US equipment through third countries, and especially through Hong Kong.

Since 1979 some 5,000 Chinese medical scientists have traveled abroad, mainly to the United States, while many more have been impressed by the high-tech equipment described in Western medical jour-



nals and put on display at exhibitions

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in China. Adding still more fuel to the demand has been the rapid growth in the number of hospitals and medical schools established since 1978 as well as an increase in the number of organizations authorized to import medical equipment.

The most recent stimulus to demand has been the restructuring of financial responsibilities in the health care sector. Since the early 1980s hospitals have been required to rely less on the State and more on their own ingenuity to alleviate chronic deficits. Under more pressure than before, hospitals have taken advantage of the fact that they do not have to reimburse the government—or, in some cases, enterprises—for imported equipment ordered on their behalf. At the same time, hospitals can generate more income from the fees they charge patients who use the equipment.

And, of course, in addition to the economic incentives, there is an element of conspicuous consumption motivating most hospital administrators and physicians to order expensive medical equipment. Having Western medical technology is tangible evidence of being "modern." And hospitals with better reputations are able to attract more revenue-earning patients.

The leadership split

The rapid influx of foreign equipment and technology is not synonymous with rapid absorption, however. In the case of China, the fragmented nature of planning in the

LEADING US EXPORTS OF MEDICAL EQUIPMENT TO CHINA, 1978-86
(thousand dollars)

Type of instrument	1980	1981	1982	1983	1984	1985	1986
Total value	6,515	6,756	11,486	22,247	33,319	39,479	46,163
Electronic-medical therapeutic devices	156	179	241	135	544	300	296
Electrocardiographs	156	120	323	84	78	133	661
Complete patient monitoring systems	73	21	582	687	2,292	704	861
Electronic-medical apparatus	2,106	1,526	2,350	5,168	8,124	7,896	14,459
Parts of electronic-medical and therapeutic apparatus	31	742	742	1,044	4,211	1,707	3,275
Medical, dental, surgical, and veterinary instruments	321	705	349	793	3,114	2,276	3,020
Medical/Dental X-ray equipment, excluding x-ray tube	1,733	1,243	3,937	5,082	6,015	16,239	11,828
Artificial respiration	0	29	94	794	514	1,751	200
X-ray equipment and parts, excluding medical/dental	1,054	936	1,591	4,680	4,386	1,250	4,772
Radiation apparatus and parts for medical/dental use	558	293	22	1,890	1,281	2,128	2,309

SOURCE: Department of Commerce

health care sector has taken its toll on the efficiency with which Western technology is applied.

At first glance, the Ministry of Public Health (MOPH) appears to be the primary organ of health care planning. It has a mandate to set guidelines and provide leadership in policy implementation. Within the ministry, medical technology is administered by the Department of Science and Education and the Department of Planning and Finance. Under the Department of Science and Education, the divisions of Science and Technology Exchange and Technology Planning disseminate information about medical technology to hospitals, doctors, universities, and researchers. Under the Department of Planning and Finance, the Division of Medical Supplies and Equipment administers the approval and financing for procurement of medical equipment for ministry-related schools and hospitals.

But the picture is actually more complicated. In 1979 the State Pharmaceutical Administration (SPA) was established under the direct supervision of the State Economic Commission to manage the production, distribution, and pricing

of medical supplies. So powerful is the SPA that MOPH has to obtain its approval before importing major medical equipment—items worth \$20,000 or more—to make sure that domestic products are not bypassed. This naturally creates some friction between the two organizations.

SPA has its share of turf battles as well. One of its corporations, the China Medical Instrument Corp., is in charge of policy, regulation, and guidelines concerning research, production, distribution, import, and export of medical instruments. But in the actual importation of foreign medical equipment, the China Medical Instrument Corp. has been joined by the China Chemical Engineering Import-Export Corp. under the Ministry of Chemical Industry and the newly created Medical Materials and Supplies Corp. under MOPH—although it should be noted that these corporations must seek SPA approval before importing equipment.

Decision-making at the institutional level

By and large, however, most importing of foreign medical equipment is left to provincial and local level governments, and even enterprises. The only exception is for CT scanners, imported in such large numbers in the early 1980s that they are now subject to special scrutiny and approval from the SPA. At the provincial level, import decisions are made by the public health bureau,

following general MOPH guidelines. The bureau is in charge of provincial medical schools, oversees the provincial hospital system, works out annual plans at provincial health conferences, and supervises the activities of lower units. It does not, however, directly manage local hospitals or health facilities. The major tasks of financing and delivery of health service are left to the local political units.

China also has a number of independent health care systems. The ministries of coal, petroleum, and railways, for example, each have their own nationwide hospital network. Each have medical service bureaus that perform planning, financing, and administrative functions. The existence of this autonomous system virtually ensures inequitable access to health care since many ministries have more money than public health bureaus do to spend on medical equipment.

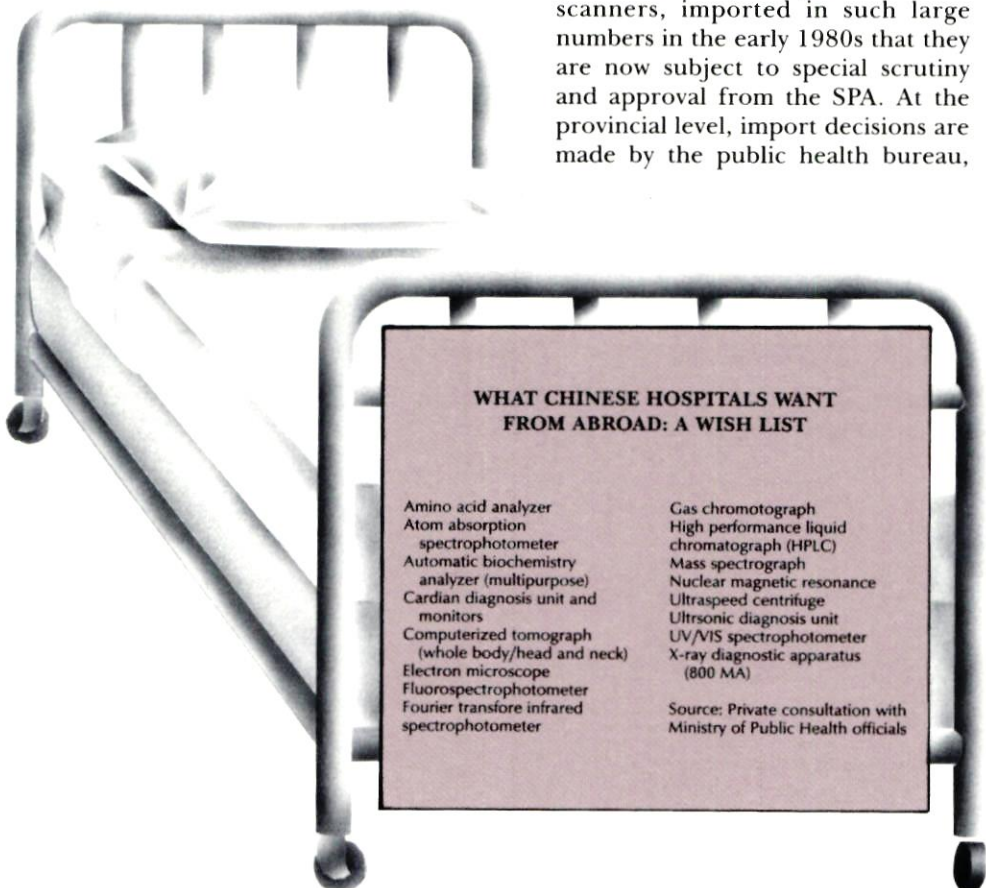
Whether part of the ministry system or not, end-users (i.e., researchers, physicians, clinicians) are usually the ones who initiate the request for imported equipment. The equipment and supplies office in the hospital routinely submits these requests to the hospital's administrative committee, which in turn prepares an application to MOPH (if the hospital is under the direct supervision of the ministry) or to the county or municipal bureau of health (if it is a local hospital).

Sometimes the request for expensive equipment is initiated by the clients of the hospital if the hospital is run by a ministry or enterprise. In these cases, the unit requesting the equipment usually finances all or part of the purchase.

In choosing equipment, hospitals usually consider the price, quality, and precision of the instruments as well as the convenience of service and availability of spare parts. Some end-users note that Chinese medical institutions often favor Japanese medical instruments for these reasons.

For some equipment, such as X-ray machines, which are also manufactured in China, a review process exists to ensure that users consider the domestic product first. However, hospitals can often justify importing foreign products by establishing technical "requirements" that only foreign models can fulfill.

The decision to buy and the choice



of brand is usually made informally by the hospital. Much more cost-consciousness is displayed, at the insistence of the World Bank, where bank-financed purchases are concerned. The competitive bidding process involved usually takes longer, but often results in a better price for the Chinese end-user.

Once an application for purchasing foreign medical equipment is approved, it usually takes 12–18 months before the equipment is installed and operational. Installation problems are a frequent cause of delays. Most of these problems—the lack of required parts, incompatibility of the equipment and facilities (e.g., water pressure, electric circuitry)—could be avoided with proper planning. Another serious problem is a lack of knowledgeable hospital personnel to operate the equipment and a shortage of technicians experienced in the maintenance and repair of this equipment. Waiting for foreign repairmen or repair parts may cause equipment to be shut down for 6–12 months.

A passion for high-tech

The case of CT scanner imports clearly illustrates the impact of decentralization on the pattern of medical equipment imports. Compared to just one CT scanner in 1978, China had about 170 in 1986, according to MOPH estimates. Distribution appears highly uneven and has come under strong criticism from Chinese academics. MOPH estimates that, in 1986, 27 units had been installed in Beijing, 17 in Shanghai, eight in Tianjin, and seven in Guangzhou—giving these four cities one-third of all CT scanners in China!

This lopsided distribution can be explained by the fact that hospitals in major east coast cities have easier ac-

cess to central government financing. The coastal cities also have greater foreign exchange reserves and easier access to international exhibitions and visiting medical scholars from abroad.

Many Chinese hospital administrators, especially in urban areas, make their import decisions mainly on the basis of how much income a CT scanner will generate for the hospital. Fees for room, board, and standard check-ups charged by the hospital are usually set by the local price bureau, an independent institution directly under the supervision of the State Economic Commission. But a hospital generally has more say when it comes to setting fees for diagnostic testing using new medical equipment. These fees are often high enough to enable hospitals to realize a profit in a relatively short time. Therefore, a popular way for hospitals to make money is to acquire new medical equipment and then charge higher fees to raise revenues. At present, fees charged for a CT examination vary from ¥90–¥150 for a head examination and ¥120–¥300 for a body examination (see table).

Health economists and officials in MOPH have begun, since 1985, to evaluate the cost-effectiveness of CT scanners and the distributional issues. A special national review committee was established in late 1985 consisting of officials in MOPH, SPA, the State Planning Commission, and medical experts. The way in which CT scanners are distributed and used in various regions and hospitals is now under review. What this committee needs to carefully consider is how urgently China needs CT scanners compared to other supplies and services. After all, CT scanners are a huge investment, costing anywhere from \$500,000 to \$1 million, de-

pending on the type of machine.

Future directions

Chinese health care administrators and health economists have identified the key issues that need to be addressed as a result of the recent upsurge in medical technology transfer. There is a need for closer coordination among MOPH, SPA, and the importing organizations. China's health planners must consider more fundamental organizational changes as well. For example, is maintaining a corporation under the SPA, independent of MOPH, really the most efficient way to manage medical technology transfer? Then there are maintenance and repair problems with much of the medical equipment, problems that are the result of a shortage of either experienced repair technicians or necessary parts, both of which lengthen the time that a machine is out of service. In this area, China needs to increase its training of technicians to operate medical equipment, systematically take inventories of parts in stock, and identify potential sources of parts as quickly as possible. A network of repair services and parts inventory should be established at the regional level.

To solve the problem of duplication or underutilization of equipment, the Chinese government has taken a first step in its efforts to review CT scanner purchases. A second step would be to make the purchasing institution responsible for reimbursing the government for the acquisition, and to implement a cost accounting system, including depreciation, supply costs, and variable costs. Of course, this system will not be easy to implement, but it is necessary if China is to reform and rationalize the way in which it purchases medical equipment and technology.完

CT SCANNERS IN SHANGHAI HOSPITALS, 1985

Product Origin	Type of CT	Purchase price (million yuan)	Number of patients examined	Fees (yuan)		Total revenue (million yuan)
				head	body	
United States	Body (2 units)	3.03	8,923	90	120–200	1.27
West Germany	Body	2.78	3,313	150	200–300	.65
Japan	Body	1.50	1,948	90	120–200	.29
United States	Body	.80	504	90	120–200	.07
Japan	Head	.50	7,076	147	–	1.04
Japan	Head	.46	1,587	90	–	.14
Japan	Head	.60	2,611	90	–	.32
Japan	Head	1.12	3,599	126	–	.46
China	Head	.25	900	90	–	.14

SOURCE: Xiao, Dekui and Cai Renhua, "An Assessment of the Management and Utilization of CT Scanners—A Survey of CT in City of Shanghai," *Weisheng Jingji* (Health Economics), 1986.

Selling Medical Equipment to China

Paul Woodward

In July of this year, many international medical companies breathed a great sigh of relief. After more than six months of virtual strangulation on funds for new medical equipment in China, foreign exchange suddenly became available again. As one foreign trader in Beijing quipped, signing all the contracts that had been agreed upon over the last nine months was giving him writer's cramp. But even the lucky companies complained of lean pickings compared to the bonanza years of 1983, 1984 and, to a lesser extent, 1985.

Roller-coaster swings in the market, intermittent funding, diversification of buying power, and significant People's Liberation Army (PLA) involvement all combine to make estimates of the size of the Chinese medical equipment market little more than stabs in the dark. Figures based on the customs statistics of major foreign suppliers and educated guesses by various consultants suggest that China spent around \$300 million on foreign medical equipment annually from 1983 to 1985.

The mood of the market over the last two years would suggest that this figure has dropped quite substantially. Nevertheless, companies taking a controlled line on budgets and sales projections are still recording acceptable returns. And investment opportunities exist for interested companies offering specific technologies China currently needs, such as the North American heart-valve manufacturer reportedly now negotiating a joint venture in Beijing. In areas where China wants to update its medical technology, foreign companies, while still having to negotiate hard, are finding that they can put together mutually beneficial deals.



Leaner times, for now

The Medical China '87 exhibition held in Beijing in September provides a good indication of how foreign medical equipment companies feel about the market. Organized by the China International Exhibition Company, the exhibition was the biggest of its kind ever staged, with around 180 firms in attendance. Representatives from West Germany, Italy, Japan, and Finland participated in the largest numbers, with first-time exhibitors inevitably concentrated in the subsidized West European pavilions.

A large proportion of the other exhibitors were companies active in China for three years or longer, representing the "hard core" of medical traders. Most of them remain committed to doing business in China, although a number are keeping promotional expenditures under tight rein in light of the continued budgetary restraints on their Chinese customers.

Certainly the days are now past when medical shows are the main

Paul Woodward is the publishing director of Medical China and Medical China Newsfile, published in Hong Kong.

source of sales for China traders. According to some estimates, the total value of equipment on the exhibition floor was around \$30 million, while Chinese buyers had only \$5-\$6 million in foreign exchange to spend. This disparity caused a lot of grumbling, particularly from the Hong Kong trading companies, who are particularly unwilling to commit promotional funds without a reasonably certain return. Some medical consultants, however, chose to look on the bright side. Declining trade at exhibitions is, in their view, a sign of progress: in the past some Chinese customers bought equipment simply because money was available—ignoring whether it was really suited to the needs of the hospital.

Toshiba once again had the largest stand at the show. The equipment it chose to display, however, was relatively "low-tech"—a clear sign of the company's current difficulties in the China market. In fact, most Japanese companies have been finding the going very tough during the last year—due to the strength of the yen and China's efforts to limit imports from Japan—after dominating the medical sales scene in the five years up to 1986. All the same, the US and particularly West European suppliers that are currently favored in China still have some catching up to do. One British executive recently recalled a meeting with the head of the public health bureau in a northeastern port city, who told him quite bluntly that the bureau had purchased 90 percent of its equipment from Japanese companies and had "no intention of changing that policy in the foreseeable future."

Governments vie to make donations

As in other areas of China trade, the last year has seen foreign governments become more active in aid financing and straight donations in the medical sector. The West German government, for instance, donated a Siemens nuclear magnetic resonance (NMR) scanner worth more than \$1 million to a new rehabilitation center being built in Beijing by the Welfare Fund for the Handicapped, a high-profile organization headed by Deng Xiaoping's son, Deng Pufang.

The French government followed suit, announcing in August its plans to extend a \$4.8 million soft loan for the development of two hospitals in

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Sichuan and Beijing. The loan is twice as large as originally envisaged but has been made on the condition that the hospitals are equipped with French-manufactured products. Among the biggest French deals this year: two EDAP kidney lithotripters for delivery to hospitals in Shanghai and Nanjing.

Not to be outdone, the Italian government has also sponsored major projects. Earlier this year it established a 12,000 square meter first-aid center in Beijing, furnishing it with 42 ambulances. Italian companies have also been active in promoting academic links between Chinese and Italian scientists: Edwards Alto Vaoto Spa, for example, sponsored four major seminars last year on vaccine technology. The company has had success with its lyophilization plants, over 100 of which have already been installed in Chinese institutes and vaccine factories.

The British government, too, has been involved in a number of aid projects within the medical sector. At the end of last year, Deng Pufang's Welfare Fund for the Handicapped—a frequent target of donations—received some 25,000 British hearing aids. This year, Britain has also donated \$5 million to the UNICEF immunization program in China.

A Japanese project, the Sino-Japanese Friendship Hospital in Beijing, is the single largest aid project in the medical sector. The hospital was opened in 1984, after ¥16 billion (\$150 million) was donated by Japan. Japanese contributions continue to pour into the facility, including ¥50 million for basic medical equipment and daily administrative expenses. A decision is pending from the Japanese government on whether funding will be continued beyond the originally agreed cut-off date of 1989.

Conspicuously absent, until recently, from the donation scene is the US government, which generally does not make such aid contributions. In 1987, however, the US Agency for International Development made a grant to an American foundation involved in China's health sector. The American Hospital in Shanghai Foundation will use the funds to design and construct facilities and support foundation efforts to set up a teaching program.

US companies have long been vocal critics of aid packages, claiming

they distort the market. Private industry in the United States, however, has a very strong record of backing academic and philanthropic links with Chinese medical institutions. These efforts have had a very direct link with long-term business success. Chinese doctors trained on a specific machine during a visit to the United States are very likely to recommend the equipment they are familiar with when their institution decides to purchase technology.

Imports become more selective

Just how effective government donations are in promoting business is hard to say, but, at the very least, they appear to reinforce existing Chinese prejudices against locally made equipment. Nevertheless, some hospitals seem to be making better use of both foreign and domestic equipment lately, as the staff of *Medical China* noted on a recent tour of hospitals. For instance, at the Anzhen Hospital in Beijing, one of the country's leading centers for cardiac surgery, the intensive care unit was using a \$25,000 Siemens monitor only for critically ill patients. Other, less sophisticated monitors, costing about half as much, from Hewlett Packard (US) and Australian suppliers were also in use. And for the simplest cases, the hospital staff used a Chinese-made monitor that had cost just ¥1,000 (\$370). This equipment is not advanced, but experts suggest that it is usually adequate for simpler hospital tasks.

Demand for Western medical equipment continues to be strong for those machines and devices China cannot make itself. Areas of particular interest in the larger hospitals are pulse oximeters, electronic devices using a light source and electronic pulse counter mounted in a thimble, and computerized diagnostic equipment used to measure blood oxygen levels during an operation. Hospitals are still interested in purchasing all types of diagnostic scanning devices, from the simpler and cheaper ultrasound equipment that can be used even in district-level hospitals up to NMR scanners, of which China has to date purchased eight, worth some \$12 million.

China's export potential

The vast majority of China's medical-related exports are in the pharmaceutical sector. With the ex-

ception of a few small items such as surgical instruments and some other simple fiber-based supplies, medical equipment exports have been negligible. But two areas stand out as having great potential for growth: disposables and simple, mass-produced products such as condoms.

In 1986 China produced around 800 million condoms that, until this year, were used almost exclusively on the domestic market. With worldwide demand soaring due to the AIDS epidemic, Chinese factories have reported a spate of inquiries from Western countries. A single Dutch order from a Shanghai factory calls for 7 million condoms to be delivered this year. Officials expect production to rise at least 5 percent this year.

The area of disposables is one in which sales prospects could be even more impressive—in both domestic and foreign markets. Until recently most Chinese hospitals simply haven't used disposable health care items now common in the West. (Syringes and other items are sterilized and used time after time until worn out.) Current health care concerns have focused attention on the lack of such disposable items and, in mid-September, it was reported that the PLA, generally regarded as the best funded and equipped organization in the Chinese health care market, is studying standards for disposable infusion and transfusion equipment. Discussions with Chinese officials indicate that China is unlikely to import most of these disposables directly. But in order to produce them at home, plastics factories will need to be upgraded considerably, and this seems likely to be a potential growth area for foreign cooperative projects over the next year.

Opportunities for investors

Serious attempts are now being made to upgrade China's own medical equipment industry, following extensive industry reorganization over the last two to three years. Shanghai, Beijing, and Tianjin are the most important production centers with other factories, mainly medium-size, spread across the country. A number of factories are being modernized through technology transfers from foreign partners; a typical example is a joint venture involving the West German company Dräger. By the middle of this year, some 200 respirators and 100 anaesthesia machines

had been shipped in kit form from West Germany for assembly in Shanghai where they are labeled Dräger SC (for Shanghai China) and sold within China with Chinese trolleys and accessories. Another joint project is the Shanghai Sanwa Medical Apparatus Factory to produce air cushions and mattresses for patients confined to their beds for long periods. Since China is trying to upgrade its factories in all aspects of scanning and radiology, this may prove to be the next area for sophisticated technology transfer deals.

A Chinese-made heart valve costs around ¥500 as opposed to ¥6,000 for an Australian model or \$2,000 for the most sophisticated valve available in the United States—although the fact that the foreign models may last up to 10 times longer has to be taken into account when comparing direct costs. Negotiations are under way with several foreign companies on projects that will lead to the production of quality valves in China. Currently, however, only about 2,000 heart valve replacements are carried out in China every year because of the lack of modern supplies.

The outlook for 1988

Any firm predictions for 1988 would be very dangerous. Since China is keen to develop its own medical equipment to substitute for imports, the investment opportunities are clearly best for companies willing to transfer medium-to-high sophistication technology. But before an import substitution policy can be implemented successfully, the prejudices of Chinese doctors against locally manufactured equipment will have to be broken. For now, the foreign companies involved in joint ventures do not seem to have gained a significant edge over their competitors making straight sales.

In fact, medical companies at the Beijing exhibition were reasonably confident that the recent upswing in the value of China's imports would continue into 1988. Most are fairly certain that, while funds may again be cut off, the flow of foreign exchange should be less erratic than it has been over the past two years. The big companies are quietly confident that there will be enough business to justify their continued presence in China even if, for the time being, the market remains relatively limited. 完

The struggle to raise standards and rationalize production in the pharmaceutical industry

Medicines for Millions

Julia S. Sensenbrenner

As China built a health care system from the ground up in the 1950s, its priority was, of necessity, providing basic health care. Clinics and hospitals were set up throughout the country, and a small core of basic pharmaceutical factories was established—but few funds were left for research into new medicines or improving the quality of pharmaceutical production.

To some extent this situation endures to the present day. Until recently, improving the quality of medicines produced in China has been relatively low on the list of health care priorities. Instead, growth in the pharmaceutical industry has at times been uncoordinated and unruly, with little concern shown for meeting basic production process standards.

In terms of sheer output however, the figures are impressive. In 1965 China had only 192 plants producing Western medicines. Many small plants sprung up during the next decade, so that by 1975 China boasted a total of 679 Western pharmaceutical plants producing ¥3.51 billion worth of medicines. In the next 10 years more plants were built and existing ones expanded, while others turned to higher value, specialized products. By 1985 the pharmaceutical industry could claim 400,000 workers scattered throughout 839 plants and turning out ¥10.71 billion in Western medicines. And in 1986 production topped ¥12.5 billion, accounting for almost 75 percent of the value of

Julia S. Sensenbrenner, senior editor of The China Business Review, visited the site of the proposed Zhongyuan Pharmaceutical Plant in 1986 and prepared a report for the US Trade and Development Program on the project.



Photo courtesy of Medical China

all medicine produced.

A rise in productivity from ¥3,468 per pharmaceutical worker in 1965 to ¥26,775 by 1985 indicates that technical progress is also being made in the industry, as it moves slowly toward the capital-intensive operations associated with modern production processes. One industry observer characterizes China's pharmaceutical formulations as currently at 1950s to 1960s technical levels and the industry's best products at 1960s to 1970s levels.

But modernization does not just mean increasing and diversifying production. Officials of China's State Pharmaceutical Administration (SPA), a ministry-level organization established in 1979, stress that their primary goal is to raise the *quality* of all China's current pharmaceutical plants, enabling each factory to meet the international Good Manufacturing Practices (GMP) standards, set by the World Health Organization, by the year 2000.

Complications of decentralization

The State Pharmaceutical Administration may have a hard time achieving this goal. As in many other Chinese industries, the economic reforms of recent years have brought not only benefits but some unex-

pected problems.

China's pharmaceutical industry has never been highly centralized, and economic reforms in the 1980s have allowed provincial and local producers to gain even more power. Factories now have primary responsibility for determining what to make and where to sell their products. Although factories decide what and how much to produce based partly on the projected needs of hospitals and pharmacies, such local decisions do not guarantee that the Chinese population's overall health care needs are being met. For this, China needs a strong central organization to monitor and regulate production at all factories, to allocate resources, and to decide how to enforce GMP standards throughout the industry.

The State Pharmaceutical Administration falls far short of playing this role at present. Although the SPA is actively involved in directing and coordinating major national projects, it has little control over provincial and local activity. An experienced Western observer notes that "the SPA oversees but does not run the industry." Some industry representatives consider its role even more tenuous. "The regional people don't seem to talk to the officials in Beijing," says one.

During the last three years, many Chinese pharmaceutical factories have tried to capitalize on their increased independence. During 1984 and 1985, many smaller brigade, collective, and State pharmaceutical factories tried to raise their income the easy way—by boosting output. The result was often irrational production, many unmarketable goods, and large stocks. More "innovative" factories tried packaging their medicines in everything from decorative urns and mugs to briefcases, hoping people would buy their low-quality product on the basis of its novel container. These efforts were often all too successful; many consumers reportedly convinced their doctors to prescribe the medicine, only to flush it down the toilet when they got home—keeping the valuable container, of course.

The SPA responded to this problem by fining 44 factories and issuing a national circular pointing out that such illegal sales are in violation of drug packaging regulations. The circular further stipulated that any enterprises continuing this practice

would have their production licenses revoked.

The distribution of pharmaceuticals also suffered as newly independent factories tried to avoid the extra costs of shipping their products inland. Since most large pharmaceutical factories are concentrated along the coast, shortages developed in interior provinces like Yunnan, Guizhou, and Xinjiang.

Coping with shortages

But the problem of shortages is not limited to inland areas. A study conducted by a Chinese newspaper in May found that the Beijing Pharmaceutical Company can only supply 65–70 percent of the monthly orders it receives from some 200 hospitals and pharmacies. Even the Beijing Union Medical College Hospital, a key facility controlled by the Ministry of Public Health, runs out of an average of 80–90 types of medicines each month. Another Chinese report that appeared in June found the nation short of penicillin, streptomycin, ampicillin, tetracycline, anticancer medicines, insulin, and at least 13 other important medicines.

Part of the problem is caused by China's lack of production capacity to turn out adequate supplies of sophisticated specialized medicines. But China's price reform efforts have also played a role in bringing on shortages by inadvertently discouraging factories from producing certain types of pharmaceuticals. Prices for pharmaceutical raw materials and industrial chemicals rose rapidly when they were decontrolled in 1985. At the same time, however, the SPA allowed little or no increase in the sales price of medicines. This lowered the profit margin for certain types of drugs to the point where some factories cut production, switched to more profitable products, or shut down operations completely. To solve this problem, the government lifted price restrictions on certain pharmaceuticals this summer. According to SPA officials, the prices for only 50 percent of bulk pharmaceuticals and 30 percent of formulations are now fixed.

Enterprising wholesalers, more concerned with their profits than meeting the requirements of hospitals and pharmacies, added to distribution problems. During the 1987 national supply and exchange meeting for medicines, some pharma-

ceutical wholesale stations and pharmaceutical companies reportedly got only 70 percent of the antibiotics they needed while others did far worse, obtaining as little as 20 percent. Because wholesalers have no incentive to exceed their State-set quotas for buying and selling pharmaceuticals, they are usually unwilling to purchase additional products at higher market prices—even if available—to satisfy the needs of their customers.

The SPA goes on the offensive

The State Pharmaceutical Administration has plans to counteract the negative impact of decentralization on drug production and is beginning to have some impact on the situation. The SPA is taking a two-pronged approach: one prong involves creating a legislative framework to mandate tighter quality control standards, while the other involves rationalizing the number and quality of factories that produce key products or raw materials for the industry.

As part of these efforts, many small factories with antiquated machinery and low-quality products are being shut down by the SPA. Tighter controls are also being placed on the quality of products made at factories that stay in business through new legislation governing pharmaceutical production. China passed its third pharmacopoeia in 1977 and updated it in 1985, specifying product formulations and production standards. Legislation stipulating "Procedures for the Examination and Approval of New Drugs" was promulgated in mid-1985 to set rules that new drugs and existing drugs that have modified their production process must meet before than can be sold within China. In addition, the "Law on the Management of Pharmaceuticals" went into effect in July 1985, providing guidelines for plant operation and monitoring quality.

At the same time, an elaborate quality control system is being put in place under the direction of the Ministry of Public Health. This system separates responsibility for quality regulation from the production responsibilities of the SPA—and is designed to strengthen the effectiveness of industry monitoring. The SPA is also developing a means of tracking implementation of Good Manufacturing Practices itself by setting up in-factory quality control sys-

tems.

Pharmaceutical plants must obtain two licenses to operate—one for their products and another for the factory itself. To make sure enterprises uphold the standards specified in their certification, the Ministry of Public Health is setting up some 1,200 drug inspection institutes at the national, provincial, and local level to inspect preparations, selectively test drugs, determine the quality of new drugs, instruct enterprises on how to check their own quality and sanitation standards, and revise drug standards as needed. One Chinese official recently made the optimistic prediction that China would finally have a complete national pharmaceutical inspection network by the end of 1990.

No matter how long it takes to put the final system in place, the results of all these efforts are already being felt. In July the minister of Public Health reported that 82.5 percent of China's major medicines were up to national standards, as opposed to only 70 percent in 1984. During the annual national inspection in 1987, ¥11 million worth of fake medicines were confiscated. The Ministry of Public Health in the past few years also banned the use of 127 drugs that are considered addictive or otherwise harmful to people's health.

Acquiring Western technology

Raising standards alone will not be enough to bring the whole pharmaceutical industry up to international levels. Infusions of modern technology, capital, skilled technicians, and new formulations are also necessary. To this end, China's Seventh Five-Year Plan allocated funds to renovate major plants in cities such as Shanghai, Tianjin, and Wuhan and to research and develop new medicines for the treatment of cancer and prenatal complications.

The equipment needed to upgrade China's pharmaceutical industry is sophisticated, capital-intensive, and must be fully integrated with the rest of the factory's operations in order to meet the quality standards now being set by the SPA. To modernize on its own, China would have to allocate extensive financial resources to establish laboratories to conduct research and develop new technology and formulations. It is hardly surprising that since 1980 foreign firms have been tapped extensively as a

source of advanced technology, new formulations for advanced drugs, and research into the next generation of pharmaceuticals.

The SPA has made hard currency available for key foreign technology purchases to both improve quality and raise production. The first recipients of such funds have been several large, diversified pharmaceutical factories and a few smaller factories that produce specialized drugs China would otherwise have to import.

This program made possible the 1985-86 expansion of China's largest pharmaceutical factory, the North China Pharmaceutical Factory in Shijiazhuang, Hebei. And this year the North China factory, which produces antibiotics, vitamins, hormones, and other drugs, put into op-

eration a new enzymatic process to produce glucose, acquired from Denmark. The factory also installed the pharmaceutical industry's first fully computerized production line. The Shanghai No. 3 Pharmaceutical Factory, one of China's primary antibiotics manufacturers, is also using foreign technology to expand its cephalosporin production capacity in response to rising domestic demand.

West European companies, which dominate the market for capital equipment and machinery for pharmaceutical plants, understandably hold the largest share of the China market. But one US company, Dorr Oliver Inc., is benefitting from China's attempt to upgrade its production of the raw materials and bulk pharmaceuticals that go into final

CHINA'S PHARMACEUTICAL INDUSTRY

STATE PHARMACEUTICAL ADMINISTRATION

Director: Qi Moujia

Responsibility: oversees production, distribution, and marketing of pharmaceuticals

▲ BUREAUS UNDER THE SPA

- ▲ CAPITAL CONSTRUCTION AND PLANNING
- ▲ QUALITY CONTROL
- ▲ MATERIALS RESEARCH AND EDUCATION
- ▲ FINANCIAL AND PRICING POLICY
- ▲ ENTERPRISE MANAGEMENT
- ▲ GOODS ALLOCATION
- ▲ POLICY STUDY
- ▲ LABOR
- ▲ PERSONNEL
- ▲ GENERAL OFFICE
- ▲ FOREIGN AFFAIRS

● FOREIGN TRADE CORPORATIONS (under MOFERT)

- CHINA NATIONAL MEDICINES AND HEALTH PRODUCTS IMPORT-EXPORT CORP. (MEHECO)
Director: Yan Rudai
Responsibility: import and export of pharmaceuticals, Chinese medicines, chemical reagents, medical instruments and supplies, pharmaceutical-making machinery, and latest medical technology; also processes raw materials for pharmaceuticals and handles compensation trade

■ CORPORATIONS UNDER THE SPA

- CHINA NATIONAL PHARMACEUTICAL INDUSTRY CORPORATION
Deputy Manager: Zhang Sizhong
Responsibility: producing chemical and biochemical drugs
- CHINA NATIONAL HERBAL MEDICINE CORPORATION
Manager: Zhang Hongkui
Responsibility: manufacturing natural and herbal medicines; domestic distribution and sales
- CHINA NATIONAL MEDICINE CORPORATION
Manager: Yang Rongguan
Responsibility: selling chemical and biomedical medicines, medical instruments, chemical reagents, and medical glassware
- CHINA NATIONAL MEDICAL EQUIPMENT MANUFACTURING CORPORATION
Deputy Manager: Bai Ming
Responsibility: producing hospital equipment, medical instruments, and tools
- CHINA NATIONAL PHARMACEUTICAL ECONOMIC AND TECHNICAL COOPERATION CORPORATION
Manager: Hu Baohua
Responsibility: coordinating patents, licenses, joint ventures for both medicine and apparatus; authorized to negotiate foreign contracts without prior approval from higher authorities

SOURCE: National Council files

formulations. The company made a major sale of starch-producing equipment to the North China Pharmaceutical Factory in December 1986 and, earlier this year, sold an \$11 million starch plant to the Mudanjiang Pharmaceutical Factory in Heilongjiang Province through its Dutch subsidiary. Dorr Oliver has also made a number of sales to smaller starch-producing plants in such places as Shanghai, Jiangsu, and Sichuan.

Joint venturing

In the past few years China has experimented with other forms of foreign assistance to support the large expenditures the industry requires. In addition to straight technology purchases, some factories have taken

a more long-term approach, entering into major joint ventures with international pharmaceutical firms.

In 1980 the Otsuka Pharmaceutical Company Ltd. of Japan and the China National Pharmaceutical Industry Corporation (under the SPA) signed a \$7 million contract to establish China's first joint venture in the pharmaceutical sector. The China Otsuka Pharmaceutical Company Ltd. began production of intravenous solution in 1984, and plans to double capacity after its ongoing expansion is complete. The venture's success stems from its combined sales within China and to Japan, reportedly worth ¥11.3 million in 1986, and its ability to source about 50 percent of raw materials locally.

Many other joint ventures have

broken ground since 1980 (see table), and the SPA claims it currently is negotiating at least another 20 ventures. These established ventures either produce high-quality, advanced medicines that China cannot produce itself or supply a high-technology process that raises the quality of products made in China or increases efficiency. All pharmaceutical joint ventures are oriented toward the domestic Chinese market and generally source a portion of their raw materials in China. Industry representatives explain that with some minor process adjustments to raise quality and consistency, some Chinese factories can produce chemicals, starches, steroids, and the ingredients used for formulating, such as calcium, sodium, and potassium that generally

MAJOR PHARMACEUTICAL JOINT VENTURES

Partners/Date of agreement	Value	Products	Comments
Otsuka Pharmaceutical Co. Ltd. (Japan)/China Pharmaceutical Industrial Corp. 7/80.	\$7 million (50-50)	Intravenous solutions	20-year JV, China Otsuka Pharmaceutical Co. Ltd., located in Tianjin began operations in 1984. In 1986 venture produced 6 million bottles and exported 2.54 million, mainly to Japan. Second-phase expansion began in 1987; new workshop planned for 1988. Uses 50% localized material and exports 40% finished products to Japan as per contract.
E.R. Squibb and Sons (US)/SPA, Shanghai Investment and Trust Co., and Shanghai Pharmaceutical Industry Corp. 5/82.	\$10 million (50-50)	Anti-inflammation cream, neomycin, cardiovascular agents, antifungals, steroids, vitamins, capoten, corgard (patented antihypertensive drugs), velosef (antibiotic)	20-year JV, Sino-American Shanghai Squibb Pharmaceutical Ltd., began operations in 1985. Half of raw materials are imported and 20%-25% of finished products are to be exported.
SmithKline Beckman Corp. (US)/Tianjin Pharmaceutical Industry Corp. 5/84.	\$8.5 million (55-45)	Tagamet, Diazide, Zental, Contact, Ecotrin, and Ridaura (to treat ulcers, hypertension, intestinal parasites, colds and allergies, pain, and rheumatoid arthritis, respectively)	20-year JV, Tianjin SmithKline and French Laboratories, Ltd., began operations October 1987. Plan to produce 1 billion tablets and 200 million capsules per year. Plan to sell a portion to US and obtain first FDA-certification for final dosage pharmaceutical made in China.
Janssen Pharmaceutica NV (Belgium)/SPA, Shaanxi Pharmaceutical Bureau's Hanjiang Pharmaceutical Factory. 4/85.	\$14 million	Anti-intestinal parasites and anaesthetics	20-year JV, Xi'an Janssen Pharmaceutical Ltd. Currently under construction, expect onstream 1988. Most raw materials to be sourced locally.
Warner-Lambert Co. (US)/China National Corp. of Pharmaceutical Economic and Technical International Cooperation. 7/85.	\$14 million (50-50)	Empty hard gelatin capsules	20-year JV, Sino-American Capsugel (Suzhou) Ltd., to come onstream mid-1988 producing 2.4 billion capsules annually. Plan to source major raw materials locally and sell a small portion of product outside China.
Swedish Pharmaceutical Industry consortium (Astra, Ferrosan, Les, Kabivitrin, Ferring and Swed fund)/China National Pharmaceutical Industry Corp., Mashan District Industrial Corp., and Jiangsu Provincial Pharmaceutical Corp.	\$12 million (50-50)	Cardiovascular medicines for hypertension and angina pectoris, medicines for treatment of asthma and bronchitis, and nutritious intravenous solutions	20-year JV, Sino-Swedish Pharmaceutical Corp. Ltd., located in Wuxi began production April 1987. Ran into major construction problems and delayed more than one year. Will import Swedish raw materials and export 30% of finished products to Sweden. Annual output to be 1 billion tablets and 1 million bottles of intravenous solution.
Ciba-Geigy AG (Switzerland)/Beijing General Pharmaceutical Corp. and Beijing No. 3 Pharmaceutical Factory. 1/87.	\$11.6 million (50-50)	Cardiovascular drugs, antibiotics, and anti-rheumatic drugs	Sino-Swiss Beijing Ciba-Geigy Pharmaceuticals Ltd. located in Beijing to come onstream 1989. Will produce 400 million pills and tablets.

SOURCE: National Council files.

meet the joint venture's standards. The problem is that these factories cannot produce enough to meet joint venture demands. As more joint ventures come onstream in the next two years, the competition for high-quality raw materials should intensify.

Since many of the raw materials are available in China, joint ventures in the pharmaceutical industry tend to have a relatively low foreign exchange bill and consequently need to export only a fairly small portion of their production—primarily within Asia—to balance foreign exchange revenues and expenditures. Some of the ventures even hope to be paid in hard currency for their sales within China as a result of China's emerging import substitution policy, since their high-quality medicines should help China save on its hefty bill for pharmaceutical imports—\$158.15 million in 1986 (see chart).

At least two companies are trying to approach the quality problem from a different angle. The Warner Lambert Co. (US) Capsugel venture in Suzhou will produce hard gelatin capsules to be used by pharmaceutical manufacturers to package their products. Making this kind of investment is key to upgrading pharmaceutical production, since products meeting GMP standards are of no use without proper packaging. Capsugel offers China a highly automated packaging process that can be used for the drugs being produced by other joint venture enterprises, such as those involving Squibb, Janssen, and Smithkline Beckman. And the West Co. (US) is considering investment in a venture to make rubber components and metal seals for China's pharmaceutical industry.

Soft loans give major projects a push forward

The pharmaceutical industry has also begun to accept concessional financing to aid in the purchase of advanced technology and the implementation of major projects. In late 1986, some \$11 million of a Dutch concessionary loan to China was given to the Mudanjiang Pharmaceutical Plant in Heilongjiang. This allowed the plant to purchase the technology and equipment for a complete starch plant from the Dutch subsidiary of Dorr Oliver. Once the equipment is installed in mid-1988, the factory will process 500 tonnes of corn per day into starch derivations.

Most of this starch will be used in factories in China's highly industrialized northeast, where more than 25 percent of China's pharmaceuticals were produced in 1986.

China plans to use World Bank funds to finance the country's largest pharmaceutical project since 1949—a new plant to process corn into starches and other bulk pharmaceuticals. The Zhongyuan Pharmaceutical Factory in Henan Province will produce starch, glucose, sorbitol, and vitamin C, primarily for the domestic market. Some vitamin C, refined corn oil, and gluten feed and meal will be exported. The World Bank project team expects to submit its final appraisal report for Bank approval in March 1988.

The World Bank also plans to give China concrete help in achieving its goal of improving production to meet Good Manufacturing Practices. The Bank will fund GMP audits of three plants—the Shanghai No. 4 Pharmaceutical Plant, the Changzhou Pharmaceutical Factory, and the Shandong Xinhua Pharmaceutical Factory—and then provide loans for their renovation to GMP standards. These plants will then serve as models for other Chinese pharmaceutical factories as the entire industry strives to meet these standards by the year 2000. Money for this separate project is expected to be the second part of a large loan package that will also include the Zhongyuan Pharmaceutical Factory.

mand is a top priority, the higher quality medicines that China is producing will not just be used at home. Many developing nations find medicines a relatively easy-to-produce foreign exchange earner, and China is no exception.

Plants with export potential are receiving first priority for renovations, and early efforts are already paying off. Exports of pharmaceuticals increased 149 percent from 1983 to 1986 according to Customs statistics. China already exports more than twice as much as it imports (see graph), and Ma Ding, the SPA spokesperson, predicts that pharmaceutical exports will increase substantially this year. Already exports in the first quarter were up 68 percent over the same period last year.

Helping to boost exports is the fact that a growing number of pharmaceutical factories producing mainly antibiotics and simple synthesized bulk pharmaceutical chemicals have gained approval from the US Food and Drug Administration (FDA)—reputedly the world's strictest enforcer of pharmaceutical quality standards—to export to the US market. Before such exports can begin, the potential US user must file an application with the FDA, and the Chinese plant must be inspected—and approved. Comments Peter Smith, an FDA veteran of several inspection trips to China, "Chinese fac-



tories tend to have holes in their system where they haven't documented operating procedure and can't show inspectors what they are doing. But this is a manufacturing and control problem, not really a quality problem." When the problem merely involves documentation, the factory is usually able to change its procedures and pass inspection the second time around. Problems such as these would be found during a first-time inspection of a factory in any country, according to FDA inspectors.

The number of FDA certifications has grown dramatically over the past two to three years, as more and more US companies recognize China as an inexpensive and reliable supplier of basic products. US Department of Commerce statistics show that in 1986 China exported more than \$29 million in pharmaceutical products to the United States, including \$5.7 million in alkaloids, \$3.4 million in vitamin C, \$3.1 million in natural drugs, \$2.3 million in tetracycline, and \$1.6 million in antibiotics. In 1987 the numbers appear to be on the rise again with six-month US imports of alkaloids, tetracyclines, and vitamin C from China all up significantly over the 1986 half-year figures. Most of these products are bought in bulk and processed into final dosage form in the US. West Germany, Hong Kong, and Japan are also growing markets for these exports.

Constraints on export earnings

But if China wants to significantly increase the value of exports to the West, it will have to begin exporting formulations and generics—and this will not be easy. The FDA's Peter Smith expects that in the near future China will be forced to keep the emphasis on bulk products rather than formulations. He explains, "Bulk inspections concern the factory setting, and the production atmosphere does not affect the product since it is in an enclosed system. On the other hand, formulations require a laboratory-type setting, which is a whole different story."

Thus China may find that further increases in its export earnings from pharmaceuticals may not be as easy to achieve as in the past few years. It is a large technological jump from the simple bulk pharmaceuticals China now exports to the relatively complicated chemical compounds that will bring a much higher

return per tonne. International standards for these compounds and formulations are high and can vary slightly from country to country. Successful factory exporters will have to deal closely and directly with their foreign customers, perhaps threatening the middleman role of the China Medical Products Import-Export Corporation (see chart).

The export of some products may also be difficult to increase due to domestic demand. The tetracycline-producing Tianjin Pharmaceutical Factory, for example, has reportedly begun to sell 50 percent of its production abroad, but its action is considered at least partly responsible for the current domestic shortage of tetracycline. China has recently imposed an export licensing system to better control exports of some 15 pharmaceuticals in short supply on the domestic market. These include products such as insulin, penicillin, anticancer drugs, ephedrin, heparin,

tetracycline, and choromycetin.

China's health care system already places difficult demands on the pharmaceutical industry. Because the majority of China's citizens receive free health care, patients tend to visit clinics more often than necessary, while doctors may prescribe more free medicine than is needed. At the same time, China's aging population is in need of more specialized medicines, and the parents of a new generation of precious only children are demanding more cod-liver oil, calcium, and vitamin C to protect their children's health. Thus, the current tension between domestic demands and export pressures is likely to continue. Millions of consumers both in China and abroad will therefore benefit as China begins to achieve its fundamental goal of raising quality on the factory line—enabling the industry both to better meet domestic needs and to raise its export potential. 完

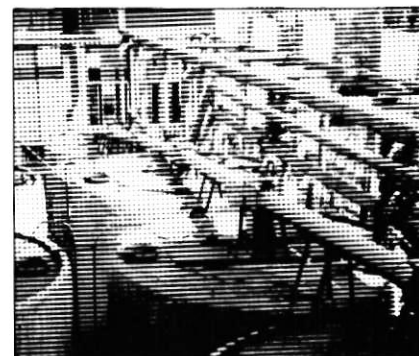
How an American company and a Chinese enterprise adapted to the changes in China's pharmaceutical industry

A Pharmaceutical Deal

Roy F. Grow

SPD Medical Technologies, a US firm, knows from experience just how quickly the business landscape can change in China. SPD set out to sell its products to Chinese enterprises, but ended up signing a joint venture agreement with a factory that wanted to upgrade both its products and its production facilities.

SPD began selling vitamin supplements to China's Ministry of Public Health (MOPH) in early 1982. The product quickly made a name for itself after the MOPH started distributing the supplements through a national network of several dozen health organizations.



But in 1984 SPD received the unexpected news that their contract would not be renewed. An SPD marketing team immediately flew to Beijing and spent three weeks discussing

the cancellation with MOPH officials. Despite the team's effort, no one would give SPD a reason for the contract cancellation beyond vague references to "policy reconsiderations at the center."

It took SPD more than four months to discover the reason for the cancellation: the agency that SPD had previously dealt with under MOPH no longer had either the funds or the authority to purchase health care products. The administrative and financial responsibility for most of these purchases had been transferred to provincial, municipal, and county-level organizations. This case study examines what SPD found as it tried to piece together the new priorities of the pharmaceutical industry and what adjustments the company needed to make in order to regain its market.

The changing Chinese market

SPD did not give up after its first disappointment. In early 1985 the company began an investigation to determine which Chinese organizations now had the authority to purchase its vitamin supplements. When an SPD representative visited some local health delivery units, he found that most had heard of the SPD vitamin product and were looking for a source. Unfortunately, the local units could not make the purchases themselves because they no longer received grants from central and provincial organizations.

During one of these visits, the SPD representative called on a local pharmaceutical manufacturer in Liaoning Province known as China Pharmaceutical. This provincial-level collective enterprise had also been hurt by changes in the Chinese budget process during the early 1980s. Some of China Pharmaceutical's major customers—several provincial and municipal health delivery units—had cut down on their orders when the source of their funding

*Roy F. Grow is a professor of political science at Carleton College. For the past decade, he has worked on projects involving over 100 American and Japanese firms involved in China. This work is the basis of his book *Competing in China: American and Japanese Firms in a New Market* which will appear this fall. Some of the names in this case study have been changed at the request of the subjects.*

changed. These delivery units were now required to generate a greater part of their revenue from direct charges to patients, and those with responsibility for less prosperous areas were having trouble maintaining their previous operating levels.

A new enterprise manager, Mr. Bu, had been appointed head of China Pharmaceutical in 1983. Manager Bu faced some difficult problems at the outset, and the financial situation at China Pharmaceutical did not improve much. But in 1985, Liaoning Province changed many of the rules governing enterprise operations, and municipal authorities in cities such as Dalian and Shenyang began to allow managers far greater authority. Manager Bu found he could negotiate directly with foreign firms, sign contracts that committed his enterprise to pay for foreign goods and services in cash, move into new areas of production without consulting provincial and national officials, and borrow money for factory renovations.

But Bu also had to make the factory profitable and avoid Shenyang's experimental bankruptcy provisions. The factory could no longer rely on old customers; most revenue would have to come from new sources. He sensed that some of the expanding

health delivery units—especially those in fairly well-to-do urban areas of Liaoning and northern China—were potential customers. But to capture a share of this market, the factory would first have to move into more lucrative products, such as oral contraceptives and new antibiotic drugs.

China Pharmaceutical did not have the ability to manufacture high-quality products in these areas. Manager Bu had seen some of the new drugs that were coming to Liaoning from Japanese firms in Hong Kong. The quality of the drugs was uniformly high, their packaging gave them an exceptionally long shelf life, and they had a surprisingly low cost per unit. To compete, China Pharmaceutical would have to upgrade both its product quality and packaging.

After several meetings with his senior managers and chief engineers, Manager Bu was convinced that the enterprise needed better equipment and management expertise if it was to survive. So when Manager Bu met the SPD representative in 1985, he expressed an interest in American products, especially the methods used by SPD to manufacture over-the-counter remedies and hospital drugs. The SPD representative was

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surprised to learn that the factory manager also wanted to purchase equipment and license several procedures for his own facility.

Making the decision

Manager Bu met with the SPD representatives several times during their 1985 visit. SPD wanted a direct sales arrangement—vitamins and drugs for cash. But Bu had a more ambitious agenda: a joint venture between China Pharmaceutical and SPD to produce SPD's products in China.

SPD marketing executives were excited by the possibility of producing their product in China. But a joint venture (especially in China) seemed more difficult than a direct sales arrangement, and at first there was little consensus within SPD about the feasibility of such a project.

SPD executives had many questions about the joint venture. Could SPD's proprietary knowledge be protected? What would happen if the SPD equipment were not used as intended? Would SPD be financially liable? Would SPD brand names be protected? How would payment be arranged? Because the rules governing Chinese enterprises were changing so rapidly, SPD found they had trouble getting answers and obtaining reliable market information.

Negotiation issues

When SPD's four-man team returned to Liaoning to discuss these issues in late 1985, they found that Manager Bu had been doing some planning of his own. He had done some investigating and decided that his enterprise needed four kinds of help: packaging technology, temperature control equipment for antibiotic preparations, licenses to produce certain SPD drugs, and management expertise.

Manager Bu and the Americans reached an agreement about these four areas quite quickly, and then established general principles for operating the joint venture. The SPD team pledged the necessary equipment, some quality control devices, expertise to help prevent interbatch contamination and provide protection for workers from noxious chemicals, and general management training. For its part, China Pharmaceutical would provide the site, labor, and access to distribution networks in northern China. China

Pharmaceutical also agreed, in principle, to provisions guaranteeing SPD's proprietary information and protecting their brand names.

Then, unexpectedly, the negotiations bogged down. SPD wanted a "technology development fee" included in the agreement to help defray some of the firm's past development costs. To Manager Bu, this technology fee seemed like a double payment for the same goods, and he was not certain how it would be viewed by any Chinese agency that reviewed his accounts. He argued that the Chinese enterprise was buying hard goods—machines, formulas, management know-how—not research.

Manager Bu consulted two officials in different provincial agencies. The answers he received were mixed: both men believed that such a payment was acceptable "in principle," but both officials also thought that in this case the payment was too great. They proposed a lower figure that was, finally, acceptable to SPD.

Solving SPD's request for guarantees on its proprietary information proved more difficult, and the new provincial and municipal enterprise guidelines offered very little help. SPD wanted strong contractual assurance that its formulas and manufacturing processes would remain within the joint venture operation, and that they would be used only in the manner specified in the joint venture agreement. Writing such a guarantee into a joint venture agreement was easy enough. But SPD lawyers wanted to include some triggering mechanisms—provisions that would set specific remedial measures in motion if some of the conditions were not met. Manager Bu again turned to an outside agency—this time a municipal economic organization—for help in writing these guarantees. But as both sides discovered, the final contractual provisions were enforceable only in Liaoning, and not necessarily valid in other parts of China.

Convincing potential customers

As it turned out, negotiating the agreement was only the first of a series of hurdles that Manager Bu and SPD had to cross. Even though China Pharmaceutical had great latitude to negotiate the joint venture, several outside agencies viewed the contract as a potential threat to their own plans. These agencies actively at-

tempted to sidetrack the new joint venture, or at least to put it on "hold" while their own plans took shape.

During the early stages of planning the new joint venture, for example, Manager Bu consulted some of his potential customers—distribution organizations that might get some of China Pharmaceutical's products into local and regional over-the-counter markets, and provincial associations that supply rural health delivery circuits. All expressed interest in China Pharmaceutical's new products.

But it was the hospitals that were key to Manager Bu's plans. If he could gain access to the regional hospital associations, he believed, his sales would be more steady, and the expenditure of funds for the new antibiotic production facilities could be more quickly written off. He began talking with purchasing agents in these associations.

The hospital associations now have a fairly broad mandate to select their drug suppliers. But these associations are in turn tied into drug delivery programs run by the State Pharmaceutical Administration. When one SPA official heard about the prospective joint venture, he worried that the arrangement might hurt a more general plan to develop several large-scale drug production and packaging projects in different parts of China that he had been negotiating with a large Japanese firm.

Outside pressures threaten the deal

The SPA official counseled the hospital association to be careful in signing a purchase agreement with China Pharmaceutical. The suggestion did not go unnoticed; even after decentralization the SPA still has some important tools at its disposal that give it great persuasive power. The SPA has direct access to some large foreign suppliers of drugs and equipment and can offer the hospital associations good prices on bulk purchases; it receives numerous invitations from foreign firms to travel abroad, and can parcel these out to its friends; and the agency sponsors trade shows that draw foreign firms into various parts of China.

Once the SPA had declared its basic objections to Manager Bu's project, several other national agencies made inquiries. A potential road-

block emerged when China National Packaging Corporation (CHINA-PACK) wanted to know what materials would be used in packaging the new drugs. Did these materials meet national regulations? Had the materials been tested and certified? Were all of the import certificates in order?

Even the China National Chemicals Import-Export Corporation (SINOCHEM) entered the picture, requesting a list of all materials the joint venture planned to use in the new production processes. Were all of the chemicals on the approved list? Were all of the safety regulations being followed? Did the factory have the proper authority to sign contracts that involved the use of these new materials?

This type of conflict between economic agencies and ministries is becoming more common with decentralization. Rules laid down by one agency are often contradicted by rules laid down by another, and one office's project may interfere with the plans of another office. Likewise directives issued by an office in Beijing are not always interpreted uni-

formly throughout China. Manager Bu was not used to pressure from national-level agencies. But he answered all the queries and his Liaoning patrons stood firm, insisting that Manager Bu was well within his authority to negotiate with a US firm.

A final agreement

Despite these bureaucratic stumbling blocks, representatives from SPD and China Pharmaceutical initialed a formal agreement in late 1986. The terms of the agreement call for SPD to provide equipment over a three-year period and management oversight and training for five years. China Pharmaceutical will assign 40 percent of its existing facility to the new venture, provide expert labor, and be responsible for all on-site costs. The agreement also spells out provisions for guaranteeing SPD's proprietary information and protecting its trademarks and brand names.

More important, SPD agreed to train Chinese personnel in production techniques, quality control, and basic research. The American firm will also sponsor several Chinese

technicians to visit the United States each year to receive training for several months.

Since the agreement was signed, China Pharmaceutical has concentrated on lining up potential buyers. Manager Bu put together a marketing team that will tour distribution organizations in other provinces and visit hospital associations in the northeast. Locally, two hospital associations have already signed one-year purchase agreements for several SPD drugs. Other products will be offered as over-the-counter remedies to distributors within the province.

For now the joint venture appears to be on track to tap the potential for new sales as China's medical care industry grows and modernizes. There are some clouds on the horizon as national and provincial drug and health delivery organizations struggle to understand their new mandate. But local enterprises and State agencies are learning the importance of staying up to date on industry developments, and are likely to work even harder to keep the industry's joint ventures on the forefront of product and market development. 完

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The New Customs Law

Yvonne Chan and Mimi Levy

By the late 1970s it was clear that China's Interim Customs Law, promulgated in 1951, was ill-equipped to cope with the ever-increasing volume of goods and people entering and leaving the country. The issue became even more pressing between 1979 and 1985 as the volume of imports and exports under customs supervision rose 90 percent, the number of motor vehicles, aircraft, ships, and other means of transportation entering and leaving China tripled, and revenues earned by the State from customs duties increased six-fold.

China has responded with a new law setting forth general principles for supervising and controlling goods and articles that enter or leave the country, and their means of transportation. The Law of the People's Republic of China on Customs (the "Customs Law") took effect on July 1, 1987. The new law's seven chapters and 61 articles are much shorter than the 19 chapters and 217 articles of the Interim Customs Law, but many existing customs rules and regulations, promulgated over the last 36 years, provide detail lacking in the new and more streamlined Customs Law.

The basic framework

The Interim Customs Law expressly set forth the hierarchy of local customs offices, provided for the appointment of chiefs of customs offices, and set guidelines on the location of customs offices. Much of this detail has been omitted in the new Customs Law, which merely stipulates that the General Administration of Customs (the GAC) uniformly administer customs throughout the country, and that customs offices be established at ports and places where

The new rules lay out more liberal appeal procedures for those who object to the penalties meted out by customs. There is now a longer period in which to file an application for reconsideration, and recourse to the courts is allowed.

the business of customs supervision and control is concentrated.

The entire customs bureaucracy now encompasses some 135 customs branches and a total workforce of more than 20,000 people. Due to the volume of work and the large number of customs branches in Guangdong Province, a Guangdong subadministration of customs was established by the GAC in 1980 to help administer the customs branches within that province.

The General Administration of Customs continues to answer directly to the State Council for its work, while the people's governments at the provincial level supervise and guide the local customs offices.

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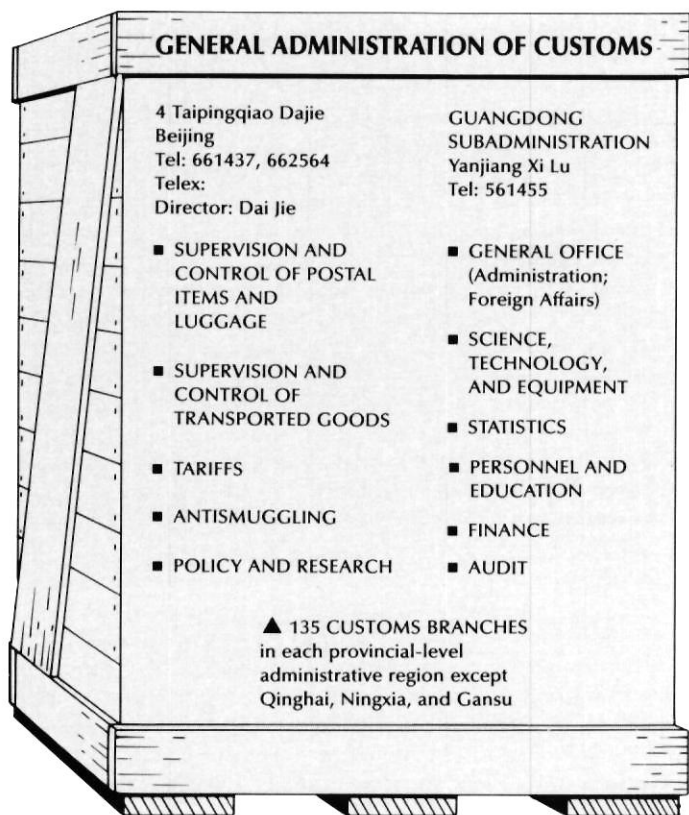
When formulating policies governing foreign investment and trade, the GAC works closely with other Chinese ministries, especially the Ministry of Foreign Economic Relations and Trade and the Ministry of Finance.

Handling of goods and articles

Control over goods and articles as they enter or leave China is at the heart of customs work. Customs has the right to make brief examinations and reexaminations of all imports and exports and to take samples away. The consignee or consignor of the imports and exports, respectively, must be present when such examinations are carried out. The Customs Law allows the GAC to exempt certain goods and articles from examination upon formal request, such as items brought into or out of China by diplomatic missions or other entities enjoying diplomatic privileges.

The imposition and collection of customs duties on imports and exports is among the most important functions of the customs system. (This system is discussed on pages 46-49). After the applicable customs duties have been paid or guarantees for their payment made, imports and exports can receive customs clearance. However, if such goods require, but do not have, import or export licenses, they will instead be disposed of in accordance with provisions expected to be formulated soon by the State Council.

The Customs Law makes it clear that goods, whether entering or leaving China, must pass through points where there are customs facilities. However, in undefined "special circumstances" they may pass through other areas with the approval of the State Council or its authorized de-



partments. If shipping vessels and aircraft are forced to anchor or land in places without customs branches, or to prematurely dump or unload goods, a report must be filed with the nearest customs office. This reflects an apparent elevation of the role and duties of China's customs officers, since earlier laws required a report to be filed instead with the public security organs, local port authorities, or the local people's committee.

Goods that are merely in transit through China are also subject to customs control. The Customs Law provides that the person in charge of their means of transportation must fill out customs declarations and ship the goods out of the territory within a stipulated period. Such goods are examined only when customs officers consider it necessary.

• **Imported goods** are subject to Customs supervision and control from the time they enter China until customs formalities are completed. Customs declarations must be made by the consignee of the goods (or the unit authorized to make such declarations) within 14 days after the means of transportation that carries the goods enters the country, or else a penalty will be levied. The penalty for late declarations is 0.05 percent of the CIF (cost, insurance, and freight) value of the goods calculated

sell off unclaimed goods also existed under the Interim Customs Law, but does not appear to have been exercised regularly. Unclaimed imports have been rotting at China's railway stations, docks, and airports for as long as eight years, while the customs warehouse at Beijing Airport already houses more than 2,700 uncollected items.

• **Exported goods** are subject to customs control from the time the Chinese consignor fills out a customs declaration form until the goods leave China. Customs declarations must be made by the consignor no more than 24 hours before the goods are loaded onto the means of transportation conveying them out of the country.

• **Personal luggage and postal items** carried or sent into or out of the country are restricted to items for personal use and limited to a reasonable number. Exactly what constitutes a reasonable number is not specified in the law, but persons planning an extended stay in China can—and often do—bring sufficient supplies to last throughout their stay. More detailed customs rules and regulations cover the handling of personal mail, parcels sent by sea mail, parcels sent from or to Hong Kong and Macau, supervision and control over articles of persons or

on a daily basis. If no customs declarations are made within three months, customs may sell off the goods and turn over the funds to the State treasury. The consignee may claim the money earned from such a sale by making an application within one year from the date of the sale. Upon verification, the money—less transportation, loading and unloading, storage, and other fees and taxes—is to be returned to the consignee.

The power to

organizations enjoying diplomatic privileges and immunities, articles imported by foreigners engaged in cooperative oil exploration, representative offices, and so on.

Parcels being mailed overseas are subject to inspection at the international post office before being sealed. Unsuspecting foreigners often arrive at the post office with their parcels carefully wrapped, only to discover that they must allow customs to make an (often cursory) examination of the contents.

Various detailed rules restrict or prohibit the mailing of certain goods. No doubt few parcels run afoul of the rule that the dried venom of toads may not be shipped out of China! But some rules are more widely applicable. For instance, because articles sent by post are in theory for personal use only, the value of parcels sent to Hong Kong or Macau is not to exceed ¥30, while the value of parcels sent to other overseas locations may not exceed ¥100. In practice, however, especially when foreigners are involved, customs officers often enforce this regulation loosely.

Smuggling and other offenses

Smuggling is a growing economic and political problem for China. Between 1979 and 1985, the number of smuggling cases jumped a startling 76 percent. Coupled with the increase in other economic crimes, the rise in smuggling has provided ammunition to those who oppose the pace of reform.

The new Customs Law contains provisions explicitly designed to check smuggling and punish those involved. Among the strongest are the provisions defining the crime of smuggling and identifying judicial authorities as chiefly responsible for punishing major smugglers. From now on, Customs officers will handle smuggling cases only if the quantities involved are small and the acts not considered criminal. And if arms or force are used during smuggling, the case—no matter how small—is to be handled by judicial authorities.

Some 26,000 smuggling cases involving the seizure of \$25 million worth of goods were investigated in 1984 alone. The main items being smuggled into China have been watches, radios, cassette recorders, televisions, video recorders, cars, motorcycles, and chemical fiber products. These cases reportedly ac-

count for 99.7 percent of the value of all smuggled goods. The much smaller number of goods smuggled out of China consist primarily of cultural relics, precious stones and pearls, jade, Chinese medicinal herbs, gold, silver, and foreign currency.

Smuggling cases involving Chinese enterprises are of special concern. During the debate on the Customs Law, it was reported that although individual smugglers were involved in 99 percent of smuggling cases, they accounted for only 1 percent of the value of smuggled goods. Enterprises, although directly involved in just under 1 percent of the cases, were responsible for 99 percent of the total value of smuggled goods!

Given the seriousness of smuggling cases involving enterprises, the Customs Law clearly stipulates that when enterprises, State organs, and social organizations are caught smuggling, the judicial authorities are to investigate the criminal responsibility of both the person directly responsible for the act and the persons in charge of them. All those involved are liable to fines, while the smuggled goods, articles, or means of transportation and any illegal earnings are to be confiscated.

The Customs Law also deals with other customs violations ranging from failure to notify customs of the arrival times and transit points for goods entering China to refusing to allow customs to examine goods and articles. Guidelines on the range of fines on persons who infringe customs regulations are provided for in separate implementing rules issued by the GAC. These rules distinguish between an "act of smuggling" and the criminal offense of smuggling and—depending on the seriousness of the circumstances and the particular act—provide for fines of ¥50,000 or up to three times the value of the customs duties payable. For violating regulations on customs supervision and control, fines up to the value of the goods or articles involved or up to twice the value of the customs duties payable may be imposed. The new rules also lay out more liberal appeal procedures for those who object to the penalties meted out by customs. They now have a longer period in which to make an application for reconsideration and are allowed recourse to the courts.

Customs personnel who abuse their power may face administrative

sanctions and criminal prosecution. Furthermore, if goods or articles are damaged during examination, customs is required to provide compensation. Procedures for obtaining compensation are spelled out in separate measures issued by the GAC that also went into effect on July 1 of this year. The measures allow the affected party to participate in the process of evaluating damage and require damage reports to be signed by both the affected party and the customs officer involved. Compensation will be paid in renminbi only—which may be of limited value if the imported goods are irreplaceable in China—and is limited to the extent of the damage suffered or the costs incurred repairing the damage.

The work ahead

The Customs Law fulfills its purpose by setting out basic principles to guide customs activity over the long term. The new law also adds a few responsibilities to the Customs portfolio while streamlining the role of

the GAC overall. As with other Chinese laws, many legal terms that would be spelled out in Western legislation are not explained, sometimes leading to inconsistency in interpretation by different customs branches. Foreign companies have already found this a factor to be reckoned with.

China's next step should be to remove inconsistencies between the Customs Law and other subordinate customs legislation. This can best be done by drafting detailed implementing and procedural rules that will clarify how, where, and when persons or entities are to fulfill their customs obligations and to exercise the rights accorded them by the new law.

The new Customs Law represents a radical change in format from the Interim Customs Law. But apart from improving the provisions on appeal procedures and strengthening the provisions on smuggling, the remaining provisions repeat many of the principles already existing in other legislation. 完

An economic lever of China's foreign trade

Understanding the Tariff System

Yvonne Chan

China's customs tariff system has undergone a major overhaul in recent years, as China's open door policy made the Customs tariff system developed in the 1950s quickly outdated. The 1951 tariff schedule has since been repealed and replaced with the Regulations on Import and Export Duties in 1985, and amendments to those Regulations appeared this year.

The tariffs division of the General Administration of Customs, in charge of administering import and export duties, has risen in status with

the mushrooming of China's foreign trade. Customs duties are an increasingly important national economic lever and a growing source of revenue. Import duties, administered by the GAC, coupled with the import licensing system administered by the Ministry of Foreign Economic Relations and Trade (MOFERT), help control the access of certain foreign goods to the China market, protect domestic production, and conserve foreign exchange. Export duties and the export licensing system discourage the export of goods and resources needed in China.

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In March of this year the State Council emphasized the growing significance of tariffs by creating a new nationwide Customs Tariff Commission. This Commission is responsible for formulating tariff policies and principles, drafting and revising tariff regulations, and examining and approving partial adjustments on tax rates. Chaired by the minister of Finance, the Commission includes the chief of the General Administration of Customs and a vice minister of MOFERT. It replaces the former Customs Tariff Rate Commission that was under the Ministry of Finance. Given China's recent application to join the GATT, it is not surprising that a more high-powered body under the State Council has been set up to handle tariff matters—including, no doubt, researching the implications of GATT membership on China's tariff system.

The Commission got down to work quickly. It has already adjusted duty rates on certain goods and made amendments to the 1985 regulations on import and export duties designed to conform certain provisions, such as appeal procedures, with the new Customs Law.

Setting duties on exports and imports

China's post-1985 customs tariff schedule is a sophisticated document based on a system formulated by the Customs Cooperation Council, an international governmental customs organization that China joined in July 1983. Although China has not formally adopted the Council's nomenclature, its use of the system reflects the effort to internationalize China's tariff system, and facilitates comparison of China's tariffs with those of other countries using this system.

China's export duties are simpler than its import duties system. Export duties are levied on products whose export China wishes to control. For example, some duties are designed to limit the export of certain raw materials, keeping them in China where they can be processed and later exported with a higher value-added component. But given China's drive to earn more foreign exchange through exports, the trend in the last two years has been to reduce both export duty rates and the number of goods subject to export duties.

In 1985 export duties were assess-

able on 35 commodities, with rates ranging from 10–60 percent. By January 1987 the number of commodities subject to export duties had dropped to only eight items—eel fish fry (60 percent duty), prawns (30 percent), chestnuts (10 percent), crude lacquer (30 percent), goat skins (20 percent), antimony (20 percent), tungsten ores and concentrates (20 percent), and the recently added raw silk (30 percent).

On the other hand, more than 2,000 items, categorized into 99 types of goods, are subject to import duties, ranging from animal and vegetable products to machinery. Tariff rates for imports are divided into two categories—minimum and general rates. Minimum rates, ranging from 3–150 percent, apply to imports originating in Eastern bloc countries, the United States, Japan, Australia, and other countries with which China has concluded trade treaties or agreements containing reciprocal preferential tariff clauses. General tariff rates ranging from 8–180 percent apply to imports from other countries.

These high import duties put a relatively heavy burden on domestic consumers and increase the incidence of duties evasion and smuggling. However, the overall trend of import duties is downward. Compared with the 1951 customs tariff system, the new tariffs introduced in 1985 reduced rates on 55 percent of dutiable items, for an overall reduction in rates of approximately 10 percent. And import duties actually imposed are reportedly far lower than those published in the customs tariff, so published tariffs are being revised downward to reflect actual practice. Although China's tariffs may seem high compared to those of "advanced" countries, the Chinese press has reported that the effective rate of import duties is actually only 7.5 percent. In March 1987 China announced that its import duty rates would be further reduced to implement more open foreign trade policies. Since then, reductions have been announced for meat and bone powder, copper sulphate, nylon 66 salt, scrap copper, lead, and zinc.

Import tariff rates depend on a number of factors, both economic and political. Consumer goods and other non-necessities are generally subject to high tariffs to discourage their import. Low duty rates or ex-

emptions are granted for commodities needed to fulfill State plans, to enhance the people's livelihood, and for goods that China cannot produce—or cannot produce in sufficient quantities or to the necessary quality standards. The reasoning behind some of China's lower tariff levels is as follows:

- Low rates are set for raw materials and materials that in the short term cannot be supplied domestically, to encourage the import of items that can be processed and then used in goods for export.

- Low rates are set for new products and novel materials such as data processing equipment and sophisticated telephone equipment, and for machinery, instruments and meters, and their spare parts and components that cannot be produced domestically. These low rates encourage the import of advanced technology to modernize the economy.

- Chinese-foreign joint enterprises receive certain special duty consideration, as do commodities used to develop tourism. For example, building materials and electrical and air conditioning equipment needed for hotel construction have been granted exemptions from import duties.

- To promote trade with Third World countries, China has lowered duty rates on tropical products bought from such countries.

Paying up

Import duties are assessed on the CIF (cost, insurance, and freight) price, while export duties are based on the FOB (free on board) price. If the CIF or FOB prices (terms defined in the 1987 amendments) cannot be determined, customs will estimate the value themselves.

The consignee or consignor of imported and exported goods must pay customs duties within seven days after customs issues a payment certificate for duties. Late payments are subject to penalties of 0.1 percent of the total duty per day, calculated from the eighth day until the duties are paid. If payment is not made after three months, customs may sell off the goods and take payment from the proceeds. If guarantees for the payment of duties have been made, customs may ask the guarantor to pay the customs duties or order the guarantor's bank to pay the duties.

Some goods are exempted from

customs duties, such as advertising materials and samples with no commercial value, gifts given by foreign organizations, and goods damaged or lost prior to customs release. The Customs Law also reiterates the principle (embodied in separate economic legislation) that customs duties may be reduced or waived for goods imported into or exported from special economic zones or other specially designated areas, and goods imported and exported by Chinese-foreign equity joint ventures, cooperative ventures, and wholly foreign-owned enterprises. The GAC by itself or together with the finance departments of the State Council can also approve temporary reductions of or exemptions from customs duties on certain goods.

A new provision in the 1987 amendment to the Regulations on Import and Export Duties stipulates that Customs will grant reductions or exemptions from duties for goods or articles entitled to them as provided in international treaties to which China has become a signatory or in which it participates. This new provision reflects China's stated practice of allowing the provisions of international treaties to prevail over domestic legislation.

How to appeal a customs decision

China's appeal procedures for objecting to customs assessments are of particular interest to foreign companies. Customs duties must always be paid before an appeal can be heard. The Customs Law and the 1987 amendments to the Import and Export Duty Regulations provide that, within 30 days from the date the payment certificate for duties is issued, the taxpayer can apply in writing to customs for reconsideration. Customs may refuse to handle an application if it is not made in time.

Under the new Customs Law, customs officials must complete their reconsideration within 15 days from the date of receipt of the request for reconsideration. If the taxpayer still disagrees with the customs decision it may, within 15 days of the second customs decision, apply to the GAC for reconsideration. The Customs Law and the 1987 amendments do not indicate the procedure for appealing to the GAC. Arguably, the taxpayer can approach the GAC directly. However, in past practice the customs office that made the original

decision transmits the appeal to the GAC with its comments.

The 1987 amendments stipulate that the GAC must reach its decision within 30 days of receiving an application for reconsideration, and deliver, through customs, its decision to the taxpayer. If delivery is impossible, a public announcement of the decision will be made.

A taxpayer may also appeal the GAC's decision through the people's court—a forum that is, at least, outside the customs regime. Court suits must be filed within 15 days of the receipt of the GAC's decision.

The main purpose of the 1987 amendments to the 1985 Regulations on Import and Export Duties has been to iron out inconsistencies on the time limitations in which appeals may be made under the Customs Law and the 1985 Regulations. Certainly, from the taxpayer's viewpoint, the new provisions in the Customs Law and the 1987 amendments, which allow a longer period to apply for reconsideration of customs decisions, are more favorable. The Customs Law and the 1987 amendments set time limits within which customs must give its opinion. This is a welcome effort to prevent customs from dragging its feet in view of the fact that, since duties must be paid before the appeals process, it is the taxpayer whose money is at stake. Moreover, customs is not obliged to pay interest to the taxpayer if duties are found to have been overassessed or customs has made a mistake.

Problems with the tariff system

Foreign firms selling to China often complain that China's import duties are too high, undermining the competitiveness of imports in the domestic market. Foreign companies have also complained that increases in China's duties on certain types of imports are used to pressure them to enter into manufacturing joint ventures or to transfer technology, rather than to sell China finished or

semi-finished products directly.

There is certainly potential for abuse of the tariff system, since Customs may at any time change the basis on which duties are assessed. Such was the case in 1981 with the issue of a customs notice stipulating that import duties on televisions, radios, recorders, and electronic calculators imported for private use were to be calculated on the domestic retail price and not the CIF prices.


Of even more concern to foreign firms are other regulatory trade practices and hidden obstacles to selling to China. Apart from the tariff system, China regulates its imports through import licensing controls, foreign exchange controls, the licensing of enterprises that have the power to import or export, pricing regulations on the sale of imports on the domestic market, and registration of certain products as a prerequisite for importation into China. And in June 1985 China introduced the controversial import regulatory tax, imposed on commodities such as vehicles, motorbikes, computers, and photocopiers, to limit their import. This action was taken after certain units and areas used large amounts of foreign exchange to import goods whose prices varied substantially from domestically sourced goods, causing a drain on China's foreign exchange reserves and "adversely affecting the development of the national economy."

Thus, even if tariffs are reduced, foreign companies face a plethora of other obstacles when they trade with China. However, with China's decision to apply to resume membership in GATT, China will have to consider the removal of these more subtle trade barriers and continue to reform its foreign trade system. As China's GATT application is considered, its customs tariff system will no doubt come under close scrutiny.

Generally speaking, China's tariff system per se does not present a major problem for foreign companies. The tariff rates are published and the related legislation indicates how they should be applied. Although China's application of customs tariffs may not always be viewed as correct or acceptable, the existing customs legislation at least offers a means of dealing with grievances through appeal procedures within the customs hierarchy or through resort to the people's courts. 完

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The S&T Connection

US-China cooperation is poised to enter a new phase, if funding problems can be resolved

Toufiq A. Siddiqi, Shi Minghao, and Jin Xiaoming

The first phase of cooperation in science and technology between China and the United States is drawing to a close. In the seven years since the signing of an S&T umbrella agreement, the two countries have exchanged thousands of scholars, initiated over 500 new projects, and concluded some 27 protocols. For both China and the United States, the S&T agreement represents the largest such arrangement with any country. In qualitative as well as quantitative terms, the US-China S&T program has been a success.

Now that the two countries better understand each other's needs and priorities, many involved in the S&T program believe it is time to strive for a new level of cooperation. Some elements of what might emerge as the second phase of cooperation are becoming clearer: more emphasis on joint research rather than on short visits and seminars, and fewer but higher quality research projects. Given funding constraints on both sides, the need for greater coordination at the highest levels of government is more apparent than ever.

Evolving patterns of cooperation

Small-scale exchanges between the United States and China, organized primarily through nongovernmental channels, were revived following the normalization of US-China relations in 1972. Some of these exchanges led to the signing of memoranda of understanding in such areas as academic exchanges, agriculture, and space technology. These were later incorporated into the "Agreement on Cooperation in Science and Technology" signed in January 1979, just after the United States and China established diplomatic relations. This accord has served as the umbrella un-

der which a broad range of protocols have been signed (*see table, p. 52*).

The umbrella agreement provides for a Joint Commission on Scientific and Technological Cooperation to oversee the progress of the cooperative programs and plan future activities. The co-chairmen of this commission are the chairman of the State Science and Technology Commission of China, currently Song Jian, and the science adviser to the president of the United States, currently William Graham.

Cooperation under the protocols is designed to promote common objectives, among them: improving the overall bilateral relationship; advancing scientific and technological knowledge; developing trade; and enhancing domestic R&D capabilities. Over the past few years, as cooperative programs have gotten under way, the emphasis has shifted from working-level meetings and visits of a general nature to in-depth research visits and academic symposia. Even the Joint Commission has opted to meet less often—once every other year, rather than once every year as had been the case initially.

China and the United States, pleased with the progress made under the umbrella agreement, ex-

tended it for another five years in 1984. The number of bilateral agreements now stands at 27. The more productive accords include those dealing with the exchange of scholars and students; basic sciences; agriculture; atmospheric science; environmental protection; high energy physics; industrial science and technology management; marine and fishery sciences; medicine and public health; and seismology. One side or the other has expressed interest in signing new protocols dealing with biotechnology, microelectronics, mining and metallurgy, and labor statistics.

Is the benefit mutual?

There is a widespread impression in the United States that the US has little to gain in the exchange of scientific and technical information with developing countries. While this may apply to exchanges with a number of other countries, it is less true of US-China exchanges. Most of the programs were designed to cover areas in which both sides benefit, albeit in different ways.

The agreements signed by China and the United States within the framework of the S&T umbrella agreement provide for joint research in almost every field. China has primarily benefited from enhanced training opportunities for its scientists and engineers, as well as access to advanced equipment and technology. The US side has benefited from Chinese research in several areas. As part of the agriculture protocol, the United States acquired from China more than 40 species of selected predators that prey on gypsy moths and other pests. In the natural sciences, the United States benefited from access to centuries-old historical records dealing with earthquakes, climatic change, and floods. And

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American scientists have been able to carry out research in some areas previously closed to foreign nationals. They were, for example, the first group to obtain access to seismically active regions in Yunnan Province and northwest China—areas where scientists from a number of other countries were also keen to go. Access to Chinese data measuring regional differences in susceptibility to cancer, hypertension, and other illnesses has enabled American medical researchers to make comparisons between populations with very different living conditions and genetic characteristics.

It takes time before the results of joint research are applied, but in some cases the research has already produced tangible benefits for both countries. For example, American and Chinese researchers cooperating over a period of three years have developed a vaccine that, if administered within hours of birth, can prevent most maternal-fetal transmission of chronic hepatitis B infections.

Information flows both ways

For China, an essential component of S&T modernization is overseas training for scholars and students—mainly at US institutions. It is no coincidence that educational exchange was the subject of the first S&T agreement between the US and Chinese governments in 1979. Today, about two-thirds of Chinese students in the United States study engineering, physical sciences, computer sciences, mathematics, life sciences, and health. Those who have already returned to China have made important contributions to the improvement of educational programs and research facilities in their home institutions.

An important academic exchange program is the 'National Program for Advanced Study and Research in China.' Each year about 50 US scholars and students go to China, and more than 1,000 Chinese scholars go to the United States under the provisions of the "National Program." This exchange program has so far sponsored 205 US scholars and 125 students to undertake research and study in China.

But educational exchange covers more than this select group. More than 2,000 US students and scholars have gone to China since 1979 under

other sponsorships. Another 4,000 or so Americans have attended short-term study courses in China and it is estimated that more than 11,000 Chinese students and scholars are now in the United States under Chinese government sponsorship. In addition, about 7,000 Chinese students have studied in the United States on a self-supporting basis.

Chinese students are also exposed to the American educational system at the National Center for Industrial Science and Technology Management Development at Dalian (see *The CBR* May–June 1985, p. 39). Jointly planned and established in 1980 under the Management of Industrial Science and Technology protocol, it has trained more than 2,000 senior-level managers in industrial organizations, economics specialists, and college instructors in management skills. The center now also offers a three-year Young Executive Program at the State University of New York at Buffalo. The first group of 38 Chinese students received their MBA degrees in December 1986.

Those who will not be making the trip overseas or attending the Dalian Center can still learn about developments in US science and technology as a result of a protocol signed in 1984 between the Institute of Scientific and Technical Information of China (ISTIC) and the National Technical Information Service (NTIS) of the United States. Each year, China imports some \$450,000 worth of books and reports from NTIS, purchased at the domestic price rather than the higher price usually charged overseas customers. US industry may benefit too as Chinese scientists and engineers become more familiar with the US technology and equipment described in these publications.

A budget crunch

Additions to the US–China cooperative programs and, in some cases, the continuation of existing programs depend on overcoming funding difficulties. US government agencies do not have specific funding earmarked for joint activities with China, and have to take the funds from already lean budgets.

By contrast, ministries in China are given funds earmarked specifically for cooperative activities with the United States. However, these ministries also have budgetary constraints due to the reduced availability of for-

eign exchange for overseas travel.

It is estimated that the US government spends about \$10–\$20 million per year on S&T exchanges with China; the expenditure by China is probably comparable. This amount is relatively small when compared to the \$111 million the National Academy of Sciences estimates was spent by universities and individuals to fund housing, tuition, and living expenses for all students from China in the United States in 1983. Yet agencies in both countries are finding it difficult even to maintain ongoing programs, not to mention starting new ones. For example, only three Chinese meteorologists will come to the United States to study mountain meteorology, instead of the 10 originally planned.

The extent to which each agency can justify projects on scientific grounds and find money for them from its own budget varies greatly, and is a major reason for the uneven implementation of the individual protocols. Valuable research projects that can actually be cheaper to conduct when performed jointly are certainly among the most likely to proceed. The National Oceanic and Atmosphere Administration (NOAA), for example, was able to fund a joint ocean heat transport and climate study with China because it had already had a budget for such a study. Cooperating with China enabled the two sides to undertake a more comprehensive program, since China agreed to supply and operate the necessary research vessels.

Since 1979, visits by scientists and administrators under the protocols have been funded on a reciprocal basis. Each country pays the airfares for its nationals traveling to the other country, and the host country picks up the cost of hotels, meals, and transportation within the country. (This arrangement has come to be known as "receiving side pays.") In cases where this is not possible, ad-hoc arrangements have been worked out, frequently outside the protocols. A common one is the "sending side pays" arrangement, now called "technical assistance" by the United States. This type of arrangement is frequently used when the host organization either does not have the funds to cover the local costs of the visiting group, or perceives that the benefits of the visit are mainly to the visitors and thus cannot justify the use of

ACTIVE GOVERNMENTAL AGREEMENTS IN SCIENCE AND TECHNOLOGY COOPERATION BETWEEN CHINA AND THE UNITED STATES

Agreement/protocol	Signed	Chinese agency	US agency
Understanding on Exchange of Students and Scholars	10/78	Ministry of Education, Chinese Academy of Social Sciences (CASS), State Science and Technology Commission (SSTC)	US Information Agency, Dept. of Education, National Science Foundation (NSF), National Academy of Sciences, National Endowment for the Humanities
Understanding on Agricultural Exchange	11/78	Ministry of Agriculture, Animal Husbandry, and Fisheries	US Dept. of Agriculture, US Geological Survey (USGS) and Fish and Wildlife Service, both of the Dept. of Interior
Understanding on Space Technology (A protocol is currently under negotiation)	1/31/79	Chinese Academy of Space Technology (Ministry of Astronautics), and Chinese Academy of Sciences	National Aeronautics and Space Administration (NASA)
Implementing Accord on Cooperation in the Field of High Energy Physics	1/31/79	Initially SSTC, now CAS	Department of Energy
Protocol on Cooperation in the Field of Metrology and Standards	5/8/79	State Bureau of Metrology	National Bureau of Standards (Dept. of Commerce)
Protocol on Cooperation in the Field of Atmospheric Science and Technology	5/8/79	State Meteorological Administration	National Oceanic and Atmospheric Administration (NOAA) & NSF
Protocol on the Field of Marine and Fishery Sciences and Technology	6/8/79	National Bureau of Oceanography; Ministry of Agriculture, Animal Husbandry, and Fisheries	NOAA; NSF
Protocol on Cooperation in the Science and Technology of Medicine and Public Health	6/22/79	Ministry of Public Health	National Institutes of Health (Dept. of Health and Human Services)
Protocol S&T Cooperation in the Earth Sciences	1/24/80	Chinese Academy of Geological Sciences	USGS; NSF
Protocol for S&T Cooperation in Earthquake Studies	1/24/80	Chinese State Seismological Bureau	USGS; NSF
Protocol for S&T Cooperation in the Field of Environmental Protection	2/5/80	National Environmental Protection Agency (under the State Council)	US Environmental Protection Agency
Protocol on Cooperation in the Basic Sciences	12/10/80	CAS and CASS	NSF
Protocol on Cooperation in the Field of Building Construction and Urban Planning Science and Technology	10/17/81	Ministry of Urban and Rural Construction and Environmental Protection	Department of Housing and Urban Development
Protocol on Cooperation in Nuclear Safety Matters	10/17/81	National Nuclear Safety Administration (earlier handled by SSTC)	Nuclear Regulatory Commission
Protocol on S&T Cooperation in the Study of Surface Water Hydrology	10/17/81	Bureau of Hydrology (Ministry of Water Conservation)	USGS (DOI)
Cooperation in the Fields of Nuclear Physics and Controlled Magnetic Fusion Research	5/11/83	SSTC	Dept. of Energy
Cooperation in Aeronautical Science and Technology	5/11/83	Chinese Aeronautical Establishment (Ministry of Aeronautics)	NASA
Protocol on Cooperation in Science and Technology of Transportation	5/11/83	Ministry of Communications	Department of Transportation
Protocol on Cooperation in the Field of Scientific and Technical Information	5/8/79	Institute of Science and Technology Information of China (ISTIC), part of SSTC	National Technical Information Service (Dept. of Commerce)
Protocol on Cooperation in the Field of Management of Industrial Science and Technology	5/79	State Economic Commission, SSTC, Ministry of Education	Department of Commerce
Protocol on Cooperation in Statistics	7/24/84	State Statistical Bureau	Bureau of the Census (Dept. of Commerce)
Protocol for Scientific and Technical Cooperation in Surveying and Mapping Studies	4/16/85	National Bureau of Surveying and Mapping (SSTC)	USGS/Defense Mapping Agency
Protocol on Cooperation in the Field of Fossil Energy Research and Development	4/16/85	Ministry of Coal Industry	Department of Energy
Protocol on Cooperation in Scientific and Technological Research and Laboratory Activities in the Field of Water Resources and Related Studies	4/9/86	Ministry of Water Resources and Electric Power	Corps of Engineers (Dept. of the Army)
Protocol on Cooperation in the Field of Telecommunications Science and Technology	5/16/86	Ministry of Posts and Telecommunications	Department of Commerce
Protocol on Cooperation and Exchanges in the Field of Conservation of Nature	11/19/86	Ministry of Forestry	Department of the Interior
Protocol on Cooperation in Railway Science and Technology	12/15/86	Ministry of Railways	Department of Transportation

NOTE: Since the memoranda of understanding dealing with Landsat and with basic biomedical sciences were not concluded at the ministerial level, China does not regard them as having the status of a protocol.

scarce agency funds for this purpose. But China considers the sending-side-pays option undesirable since it requires greater outlays of foreign exchange than the receiving-side-pays arrangement.

Greater flexibility is being advocated by a number of institutions to enable scientists to work out their own arrangements for funding when department or ministry funds are not available. One possibility for increasing the level of funding for cooperative programs would be to seek additional participation from the private sector in the United States. The current level of industry participation in the implementation of the protocols, while increasing, is still very low.

Greater industry participation is most likely in areas where there are opportunities in the short or medium-term to make a reasonable profit. Some of the most promising areas include atmospheric sciences, space technology, high-energy physics, marine and fishery sciences, and telecommunications (*see box*).

Other obstacles to success

Funding is the biggest, but by no means the only, problem jeopardiz-

ing some cooperative programs. Gaining access to the information or resources of one's partner has proven difficult on several occasions. American scientists and administrators, for example, have complained about limitations on field research in China and on access to unclassified archival material. In one recent case, US scientists interested in obtaining data on atmospheric chemistry and monsoons requested permission to fly over parts of China in a suitably equipped C-130 turboprop. An offer was made to permit PRC military pilots on board but the proposal has not yet been accepted.

In general, gaining access to sites in China considered sensitive by the military has proven a difficult barrier. The situation is improving, however, as evidenced by American visits in recent years to a satellite launch center and an aerodynamics research center, both in Sichuan Province.

Some Americans have also noted differences in the extent to which ministries in China are willing to share unclassified information. Chinese visitors to the United States have been similarly struck by the widely diverging attitudes of US com-

panies toward sharing information.

A few Chinese scholars and students also complain of being denied entrance to some conferences or courses in areas such as computer sciences, where American national security policy requires exclusion of nationals from all communist countries. They believe that a distinction should be made between visitors from China, and those from other (primarily Eastern European) communist countries. Progress in this direction is expected as COCOM guidelines on technology transfer to China are further liberalized.

Some projects falter not because of restricted access to information, but because of a lack of institutional commitment in the first place. There are cases in which projects floundered because the senior Chinese scientist moved to another institution and the organization with which he was previously associated felt under no obligation to complete the project. The national Natural Science Foundation of China (NSFC), established in 1986, may help ease this problem. The responsibilities of the NSFC include formulating strategies for the development of basic and ap-

Chamber Releases 1987 Guide To Over Two Thousand AmCham Members

The 1987 *Members Directory* to the American Chamber of Commerce in Hong Kong has been released. The 462-page directory is divided into six major categories of information:

- A) "Who's Who" of over 2,300 members which gives photographs in most cases as a help for members in recognizing business contacts at Chamber events, in addition to name and title, company address and phone number;
- B) Companies Listing of the company members represented, defining their nature of business, contact information (e.g. telex, facsimile, etc.), and lists of company employees who are Chamber members;



- C) A separate Products and Services listing which groups company members into over 30 categories of business;
- D) A guide to AmCham services for members and non-members on how to join;
- E) An organization profile that defines the approximately 20 action committees of AmCham, as well as the elected and staff authority structures;
- F) A contact and address directory to all other American Chambers of Commerce or related organizations in the Asia-Pacific region.
- G) A directory to U.S. Consulate officers and their special interest areas.

It is now available for purchase at HK\$750/US\$100 for non-members.

Checks should be made payable to the American Chamber of Commerce in Hong Kong and sent with orders to the attention of the Publications Manager, Rm 1030, Swire House, Central, Hong Kong.

Name: MR/MS _____
(Please Print)

Title: _____

Company: _____

Address: _____

Fax: _____ Tlx: _____

Tel: _____

Signature: _____
(Not valid unless signed)

Date: _____

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plied research, and arranging for international cooperation.

The implementation of some protocols has been delayed while the issues dealing with intellectual property and patents are worked out. Examples include the protocols on aeronautical science and nuclear physics. Likewise, draft agreements in public health have not been brought under the umbrella agreement, in part because the US side believes the provisions for the patents and copyrights need more work.

The approach preferred by both

sides to avoid dealing with the intellectual property issue is to use essentially the same language in each protocol. This should lead to quicker approval of protocols where patent and intellectual property considerations are a significant concern.

Export licensing presents another obstacle. Even a high-visibility and high-priority project like the Beijing Electron-Positron Collider (BEP-C) being constructed by Chinese and US scientists under the High-Energy Physics protocol has had its share of delays, in part due to the time re-

quired to obtain export licenses for sophisticated instruments with potential military applications. The situation has improved considerably as Chinese officials have become more familiar with the US export process. The US Department of Energy has also helped by making a staff member available to work closely with a counterpart from China to keep track of the status of pending export license applications.

Future directions

The fifth meeting of the US-PRC Joint Commission on Scientific and Technical Cooperation was held in Beijing from June 15-17, 1987, and the report of that meeting provides insights into the future of S&T cooperation between the two countries. The Joint Commission pledged to "continue to emphasize a balance of benefits in the overall relationship through cooperation in areas which are of mutual priority and interest and in areas of particular importance to each side, as well." It also expressed its view that "this approach is [the] key to maintaining a high level of resources committed by participating organizations in years to come." But the report acknowledged that, given the breadth of cooperation, the expected benefits to each side are unlikely to be equal for each agreement on a yearly basis.

Individual agencies may, from time to time, believe that they are drawing fewer benefits than their counterpart organizations in the other country. When these agencies have to allocate funds for cooperative programs out of their regular domestic budgets, their enthusiasm for such programs may cool. This is where the role of the Joint Commission is particularly important, in trying to balance the overall benefits to each country by considering the S&T agreement in its entirety.

The importance of resolving funding problems is demonstrated by the fact that privately funded S&T cooperation is growing at a faster rate than official programs, mainly because financial arrangements can be worked out on an ad hoc basis. Although funding concerns are not likely to affect the basic commitment to cooperate, they can have a great impact on the extent to which the agreements can be implemented, and the speed with which the cooperation can proceed. 完

TELECOM PROTOCOL BENEFITS US INDUSTRY



Photo courtesy of NTIA

US delegation meets with officials from the Ministry of Posts and Telecommunications in November 1986.

Mutual benefit and private sector involvement—these are the two main ingredients of many a successful S&T protocol between the United States and China. And the telecommunications protocol signed last year between China's Ministry of Posts and Telecommunications (MPT) and the United States Department of Commerce seems to hold special promise because of the level of interest on both sides and the degree of industry participation in the protocol so far.

No dramatic breakthroughs have occurred yet. In fact, the pace of telecommunications exchanges has been relatively unhurried, especially on the Chinese side. But US industry sources feel that the protocol offers them a good opportunity to learn about China's telecommunications needs and influence how the country's infrastructure develops by offering advice in such areas as network design and planning. To illustrate the advantages of participating in the protocol, one Comsat executive recalled his surprise when he learned that MPT had not fully thought out methods for fitting China's domestic satellites into the country's overall plan for telecommunications modernization. During a November 1986 government/industry study mission to China under the auspices of the protocol, the US team rec-

ommended the use of satellites in remote areas and MPT has taken this suggestion to heart. The US team has since issued a report summarizing the nature of China's telecommunications system and recommending ways to modernize the sector. A Chinese delegation plans a return visit to the United States in spring 1988 to meet with US government and industry representatives.

While holding these discussions with MPT, companies may also learn about market opportunities—but that is a secondary concern. As one US industry representative put it, the protocol gives industry a much-needed chance to meet with MPT in a more official setting, free of the pressures of the negotiating table.

The telecommunications protocol also provides a forum for the Chinese to express their frustration over US export control policies. Talks on this topic help US industry and official efforts to understand specific Chinese concerns and, in some cases, to modify these policies.

The protocol is certainly no substitute for other US industry initiatives in China, but most company representatives believe that it is a welcome means of supplementing private marketing activities there. —Kelly Ho Shea

BOOKSHELF

书刊介绍



Modernizing China's Telecommunications, by Ken Zita. London: The Economist, 1987 (The Economist Intelligence Unit Special Report No. 1080). 106 pp. \$995.

How much is information about China's telecommunications industry worth to you? The answer may depend on how familiar you are with the industry. If you are a newcomer to China's telecommunications market, or are only now sizing up your company's potential there, chances are that you have some important gaps in your knowledge to fill. You could hire someone to do the research for you, or you could opt to buy this book instead.

The basics are all here: a competent introduction to the notoriously confused organizational structure of the industry, a succinct but useful description of the infrastructure, and key chapters identifying China's various network providers and reporting foreign business activity. The information provided is available in no other single volume.

On the other hand, this study falls short of providing the kind of insights that might make it useful to more seasoned China traders. They will already be familiar with the business deals that this study recounts. What they are likely to look for, and not find to their satisfaction, is a systematic analysis of what market strategies have proven successful for foreign sellers and where future market opportunities lie. Whether in the area of central office or transmission technology needs, the reader does not get much of a sense of future sales prospects, beyond a rather cursory thumbs-up or thumbs-down assessment. Also perplexing is the book's tendency to gloss over the impact that export controls have on these sales prospects. However, the illuminating analysis of market shares of China's principal suppliers is well worth reading. One can only wish

that other sections were as original.

A book like this at a cheaper price would merit an unreserved endorsement. It is an excellent general reference, but is there really enough information and market analysis to put you out \$995? Like Chinese customers of telecommunications equipment, prospective readers might be tempted to wait until the price comes down. —Kelly Ho Shea

China Law and Practice. Hong Kong: China Law and Practice Ltd. (GPO Box 11886). Issued 10 times per year. \$530 per year.

China Law and Practice offers the most comprehensive coverage of China's quickly expanding legal system available in a periodical. Each issue contains a digest of recently promulgated legislation, a section examining the impact of these laws and other legal developments, and an in-depth topical review of major legislation in areas such as investment incentives and bankruptcy.

Two other features that make *China Law and Practice* a treasure trove of legal information are its published cases and contractual texts, which are extremely difficult for foreigners to obtain in English or Chinese from any other source.

The journal also provides timely English translations for the texts of major new laws as they are promulgated, accompanied by editor's comments and notes identifying the relevant subordinate regional and ministerial provisions. An index is provided in each issue. —JLL

China's Petroleum Industry in the International Context, edited by Fereidun Fesharaki and David Fridley. Boulder, CO: Westview Press. 1986. 166 pp. \$23.50.

Already a significant exporter of crude oil, China will soon be making its presence felt in the market for refined products as well. Covering China's capacities in both these areas is this informative study from Westview

Press. Four chapters outline the international petroleum market, the Asia-Pacific market, and the refining industry and petroleum trade in the Pacific Rim. Other chapters examine China's overall energy policies.

The first part of the book, detailing the structure of China's oil industry, is the weakest, with inadequate information on China's petroleum development organizations. For example, SINOPEC's organizational structure is discussed in detail, while the Ministry of Petroleum Industry and the China National Offshore Oil Corporation receive only cursory treatment. The book's numerous charts include information on China's oil production, information, offshore drilling results, and offshore rig activity. Unfortunately, these charts only cover developments through 1984. —David Richter



China Energy Report 1986, Energy Committee of the American Chamber of Commerce in Hong Kong. 1986. 172 pp. \$40, including airmail.

This highly recommended guide would have been more aptly titled "China Oil & Gas Report" since it provides information on recent oil and gas developments in China, including offshore and contract updates, but has nothing to say about other forms of energy development. However, it does a good job of covering the offshore scene and has an excellent chapter on enhanced oil recovery (EOR) in China. Most of China's oil now comes from maturing fields in the northeast, and until new fields are developed, EOR techniques will remain necessary to maintain China's high yields. The book concludes with a well-organized list of American oil companies with offices in Hong Kong. These listings include names, addresses, and a description of the companies' business scope. —David Richter

CHINA BUSINESS



Sarah R. Peaslee

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 average rate quoted in the IMF's *International Financial Statistics*.

National Council member firms can contact the Business Information Center to obtain a copy of news sources and other available background information concerning the business arrangements appearing below. Moreover, 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 Business Information Center at the National Council for US-China Trade.

	SALES AND INVESTMENT THROUGH JULY 31
Foreign Party/ Chinese Party	Arrangement/Value/ Date Reported

Agricultural Commodities

China's Imports

(UK)	Will supply 39,250 tonnes of wheat under World Food Program. \$3.4 million. 4/87.
NA (Malaysia)/Shanghai Light Industry Products Import/Export Corporation	Will supply palm oil. 5/87.
Russell Stadelman & Co. (US)	Negotiated wood and forest products import-export agreement. 5/87.

Investments in China

NA (US)/Huachuan County Peat Company and Heilongjiang Zhengda Trading Company	Signed contract establishing joint venture to develop 30,000 TPY of peat resources for fuel and fertilizer. 7/87.
NA (FRG)/A machine-building factory, Dalian	Established 15-year aquatic breeding joint venture. \$4.6 million (DM8.1 million). FRG:25%-PRC:75%. 7/87.
Ceni Corporation (US)/Four companies in north-east China	Signed contract establishing Dalian Jin-Neb Beef Company Ltd. joint venture to raise cattle and process beef. Registered capital: \$12 million. (US:60%-PRC:40%). 7/87.

Abbreviations used throughout text: BOC: Bank of China; CAAC: Civil Aviation Administration of China; CAIEC: China National Automotive Industry Import-Export Corp.; CCTV: China Central Television; CEIEC: China Electronics Import-Export Corp.; CEROILFOODS: China National Cereals, Oil, and Foodstuffs Import-Export Corp.; CHINATEX: China National Textiles Import-Export Corp.; CITIC: China International Trust and Investment Corp.; CITS: China International Travel Service; CNCCC: China National Chemical Construction Co.; CNOOC: China National Offshore Oil Corp.; CNTIC: China National Technical Import Corp.; COSCO: China Ocean Shipping Co.; CPIC: China National Corporation of Pharmaceutical Economic and Technical International Cooperation; ICBC: Industrial and Commercial Bank of China; INSTRIMPEX: China National Instruments Import-Export Corp.; ITIC: International Trust and Investment Corp.; MACHIMPEX: China National Machinery Import-Export Corp.; MAI: Ministry of Aviation Industry; MEI: Ministry of Electronics Industry; MINMETALS: China National Metals and Minerals Import and Export Corp.; MLI: Ministry of Light Industry; MOCI: Ministry of Coal Industry; MOPI: Ministry of Petroleum Industry; MPT: Ministry of Posts and Telecommunications; MWREP: Ministry of Water Resources and Electric Power; NA: Not Available; NDSTIC: National Defense, Science, Technology, and Industry Commission; NORINCO: China North Industries Corp.; SINOCEM: China National Chemicals Import-Export Corp.; SINOPEC: China National Petrochemical Corp.; SINOTRANS: China National Foreign Trade Transportation Corp.; SITCO: Shanghai Investment and Trust Corp.; SPC: State Planning Commission

Agricultural Technology

China's Imports

NA (Australia)/Yangzhou, Jiangsu	Supplied equipment for feed-processing plant to produce fish and poultry feed. 6/87.
Kansas MEC Feed Machinery Company (US)/Zhumadian Prefecture, Henan	Supplied equipment for 44,000 TPY feed-processing plant. 6/87.
NA (Switzerland) and NA (HK)/Yueyang Cereals and Oils Company, Yueyang, Hunan	Supplied equipment for 140,000 TPY feed-processing plant. 6/87.

Investments in China

(Denmark)/Harbin, Heilongjiang	Finished Heilongjiang Dairy Products Technology Training Center joint venture. 6/87.
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Other

Ministry of Agriculture (Netherlands)/Ministry of Agriculture, Animal Husbandry, and Fisheries	Signed agreement to cooperate in agricultural research and training. 4/87.
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Chemicals and Chemical and Petrochemical Plants and Equipment

China's Imports

Energoinvest (Yugoslavia)/SINOPEC	Negotiating sale of meters used to measure the level, flow, and pressure of liquid in processing industries. 6/87.
E.I. Du Pont de Nemours & Co. (US)/Jinshan General Petrochemicals Factory, Shanghai	Signed contract to supply polyester technology and equipment. \$52 million. 6/87.
Kennametal Inc. (US)/EQUIMPEX	Signed contract to transfer technology for extruded carbide products to Zigong Cemented Carbide Plant in Sichuan Province. 7/87.
NA (US)/Yikang Chemical Co. Ltd.	Signed agreement establishing joint venture to manufacture industrial and household cleansers. \$2.4 million. 2/87.

Other

Ministry of Energy and Mines (Venezuela)/SINOPEC	Signed five-year agreement to cooperate in petrochemical production. 7/87.
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Chemicals (Agricultural)

China's Imports

Dow Chemical Pacific Ltd. (HK), subs. of Dow Chemical Co. (US)/CNTIC	Signed agreement to supply 6,000 liters of pesticide. \$48,000. 4/87.
Mitsubishi Corp. (Japan)/CNTIC	Signed agreement to supply 20,000 tonnes of urea for use in World Bank-financed Red Soil Development Project. \$1.9 million. 5/87.

Construction Materials and Equipment

China's Imports

Beautiline Tubex (UK)/ Foreign Trade Center, Guangzhou	Signed contract to supply equipment for modernization and refurbishment of the trade center. 2/87.
China Resources Machinery Company (Japan)/ Ministry of Agriculture, Animal Husbandry, and Fisheries	Signed contract to supply 12,350 tonnes of 65mm wire rod for World Bank-supported Freshwater Fisheries Project. \$3.2 million. 2/87.
F.L. Smidth & Co. (Holdings) Ltd., subs. of Potagua A/S (Denmark)/ Shunchang (Fujian), Guangzhou Municipal Bureau of Building Materials, Zhujiang (Guangdong), Guangxi Building Materials Export Supply Co., Liuzhou (Guangxi)	Will supply machinery for cement plants at Shunchang and Zhujiang; supplied equipment to newly completed plant at Liuzhou. 4/87.
Mitsui & Co. (Japan)/ CNTIC	Signed agreement to supply excavator and spare parts. \$4,100. 4/87.
Onota Cement Co. (Japan)/ CNTIC	Signed contract to supply technology for cement production to the Shandong Construction Machinery Works and the Tianjin Cement Industry Design Institute. \$355,771-\$771,541 (¥50-¥100 million). 6/87.
Marrow Crane Co. (US)/ Shanghai	Will supply six Liebherr 88-tonne cranes and two construction elevators. \$3 million. 6/87.
Nitto Boseki Co. (Japan)	Signed contract to supply plants to manufacture nonflammable ceiling boards, which will be used in hotels for the 1990 Asian Games. 5/87.
Summa Group Ltd. (US)/ CNTIC	Signed agreement to supply 2,700 tonnes of mild steel rod for World Bank-financed Red Soil Development Project. \$68 million. 5/87.
Mitsubishi Corp. (Japan)/ CNTIC	Signed agreement to supply 2,700 tonnes srew-thread steel for use in World Bank-financed Red Soil Development Project. \$989,095 (¥103.4 million). 5/87.
NA (Canada)/Beijing	Supplied assembly line to produce solar water heaters. 8/87.

Investments in China

Australian Industrial Pipe System Private Ltd. and Esdan Flavel Pty. Ltd. (Australia)/Lingyun Machinery Factory (joint venture under NORINCO)	Signed agreement establishing Chinaust Plastic Corporation Limited 20-year joint venture to produce plastic gas pipes. \$2 million. (50-50). 5/87.
Asiatic Pacific Industries Ltd. (Australia)/Xinghua Industrial Stock Corp., Shenzhen	Signed contract establishing joint venture to process and distribute plywood and timber products. (50-50). 5/87.
Carrier (China) Co. Ltd., subs. of Carrier Corp., subs. of United Technologies Corp. (US)/Shanghai No. 1 Freezer Works	Will form Shanghai United Kaili Airconditioner Ltd. joint venture to produce centrifugal and piston-type cold water air conditioners. 6/87.
Myer Industry Company (Singapore)/China National Aero-Technology Import and Export Corporation	Signed agreement establishing joint venture in the Huli Industrial Zone of Xiamen to produce air conditioning equipment. \$1.6 million (50-50). 6/87.
Wing Fung Design and Decoration Co. Ltd. (HK)/Kunming Municipal Decoration and Building Materials Factory, Yunnan	Established Yongfeng Decoration and Building Materials Industry Co. Ltd. ten-year joint venture to produce wood furniture and decorative material designs. \$1 million. (HK:48%-PRC:52%). 6/87.
Swiss Schindler Holdings AG (Switzerland) and Jardine Schindler (Far East) Holdings SA (HK)/Suzhou Electric Machinery Works	Signed letter of intent to set up elevator joint venture. 7/87.

Oya United Development Group. (HK)/Shanghai Foreign Economic and Technical Cooperation Company and a Shanghai decoration company

Fengxiang Trading Co. Ltd. (HK)/House Repair and Construction Company, Shanghai

Consumer Goods

China's Imports

Neochi (Italy)/Shanghai Yanchong Sewing Machine Manufacturers	Will supply technology and license for production of sewing machines. 5/87.
RAM Company (Turkey)/Jiangsu Light Industrial Product Trading Delegation	Reached barter trade agreement for 1,000 refrigerators. 6/87.
NA (Egypt)/Tianjin branch of EQUIMPLEX	Signed trading contract under which Egypt will supply refrigerators and purchase motors in exchange. \$400,000. 6/87.
(Poland)	Signed agreement to supply technology and equipment to produce multifunction gas ranges. 6/87.
Fujitsu General Co. (Japan)/Chongqing Foreign Trade Import & Export Corp., Sichuan	Signed contract to supply refrigerator components to the Chongqing Refrigerator General Factory and export the finished products to Japan. 7/87.
<i>Investments in China</i>	
Yichia Industrial Corporation Ltd. (HK)/CITIC and Glass and Enamel Wares Industrial Corporation, Guangzhou	Established Pishima Crystal Corporation joint venture to manufacture crystal and glass products. \$2 million. (50-50). 12/86.
Universal Matchbox and Walt Disney Co. (US)	Established Shanghai Universal Toys Co. joint venture to manufacture and sell Disney-brand toys in China. 5/87.
NA (Australia)/Zhejiang Province	Established Asia-Oceania Soap Co. joint venture in Hangzhou. \$4 million. 5/87.
Celme Engineering Co. Ltd. (Spain)/Xiamen Leather Shoes Factory	Signed agreement establishing joint venture to produce 900,000 pairs of leather shoes annually. \$3.6 million. (Sp:35%-PRC:75%). 6/87.
Central Shoe-making Association (Okiinoru) Co. (Japan)/Xiamen Leather Shoes Factory	Established joint venture to produce 300,000 pairs of leather and other types of shoes annually. \$670,000. (50-50). 6/87.
Hong Kong Welgo Technology Ltd. (HK)/Beijing International Trust and Investment Corporation and Tongxian County Polyester Plant, Beijing	Began trial production of Jingtong High-quality Furniture Company Ltd. joint venture. \$660,000. (HK:30%-PRC:70%). 6/87.
NA (FRG) and NA (HK)/Xiamen	Set up joint venture to produce 150,000 bicycles and 200,000 bike frames annually. \$2.2 million (DM3.9 million). 6/87.
EKE Co. (US)/Xinhui County, Guangdong	Will establish joint venture pen factory. \$6 million. 6/87.
Wanbao Aluminium Industry Co. Ltd. (HK)/Aili Natural Household Chemical United Corporation, Tianjin	Signed agreement to establish joint venture cosmetics factory. 7/87.
Mottahedeh, Inc. (US)/Guangdong Ceramics Corp. and China National Arts and Crafts Import-Export Corp.	Negotiating the establishment of joint venture factory to reproduce antique porcelain. 7/87.
Japan Lion Corporation and Japan Kyoei Shoji Co., Ltd. (Japan)/Qingdao Daily Use Chemicals Factory, Shandong	Signed agreement establishing Qingdao-Lion Corporation Ltd. joint venture to produce 30 million tubes of toothpaste annually. 7/87.
Established Yayi Decoration Engineering Co. Ltd. joint venture to decorate hotels and manufacture furniture. \$268,666 (¥1 million). (HK:25%-PRC:75%). 8/87.	
Established Shanghai Huafeng Construction Company joint venture to enlarge and decorate houses and provide maintenance. Registered capital: \$268,266 (¥1 million). (HK:49%-PRC:51%). 8/87.	

Midway Industries (HK) Ltd. (HK)/Shanghai branch of China National Arts and Crafts Import-Export Corporation
Established Shanghai Midway Arts-Hat Co. Ltd. joint venture to manufacture artistic hats. \$400,000. (HK:25%-PRC:75%). 8/87.

Electronics and Electrical Equipment

China's Imports

Digital Equipment Corp. (Far East) (US)/CNTIC
Signed contract to supply 13 computer systems. 3/87.

Radio-Holland (Netherlands)/COSCO
Signed agreement to provide electronic equipment for the Shanghai fleet. 4/87.

Tata Elxsi (Singapore)/Qinghua University, Beijing
Supplied an Elxsi computer system. \$750,000. 5/87.

SGS-Ates (Italy)
Signed agreement to supply technology and equipment to construct an assembly plant for power transistors and regulators. 6/87.

Control Data China Inc., subs. of Control Data Corp. (US)/INSTRIMPEX
Signed contract to supply a Cyber computer system to the National Research Center of the State Oceanography Bureau in Beijing. \$2.3 million. 6/87.

Concurrent Computer Corp. (Ireland), subs. of Perkin-Elmer Corp. (US)
Awarded contract to supply computers for oil exploration. \$10 million. 6/87.

NCR (China) Ltd., subs. of NCR Corp. (US)/INSTRIMPEX and BOC
Awarded contract to supply 20 super-microcomputers. 6/87.

Nissin Electric Co. (Japan)/Jinzhou Electric Capacitor Factory, Liaoning
Supplied small-scale plant for making capacitors. \$29.6 million (¥110 million). 6/87.

Elxsi Ltd. (US)/Shantou University, Guangdong
Supplied mini-supercomputer system. 7/87.

Investments in China

Data General (US)/Tianjin Electronic Computer Research Institute and Qinghua University, Beijing
Negotiating the joint development of Chinese software for use in CAD and accounting. 12/86.

3 I Corporation Inc. (US)/Jiangsu Technology Research and Development Institute
Established S & I Technology Consultation and Development Corporation joint venture to arrange technology transfer, evaluate and consult on foreign investment projects, and design computer software. \$1.2 million. (50-50). 3/87.

Tarzan International Trading Co. Ltd. (HK)/Shanghai Shengyue Loudspeaker Factory
Established Shanghai Sun Tai Audio-Products Manufacturing Co. Ltd. 10-year joint venture to produce 5 million loudspeakers annually. \$600,000. (HK:33%-PRC:67%). 6/87.

Mitsui Co. Ltd. (Japan)/Stone Group Corp., Beijing
Will form Stone Office Equipment Technology Co. Ltd. joint venture to produce Chinese-language word processors, printers, and other office equipment. \$4 million. (JPN:25%-PRC:75%). 6/87.

Japan International Software Corporation (Japan)/China Computer Systems Engineering Company under MEI
Established Shenyan Systems Software Corporation joint venture to develop and sell computer software and hardware in China and abroad. 6/87.

Tolido Weigher Company (US)/Changzhou Electronic Weigher Company
Signed agreement establishing Changzhou Tolido Electronic Metrical Instrument Co. Ltd. ten-year joint venture to produce weighing display controllers, sensors, electronic weighers, and parts. \$5 million. (US:60%-PRC:40%). 6/87.

Fujitsu Ltd. (Japan)/Fuzhou, Fujian
Signed agreement establishing Fujian Fujitsu Communications Software Ltd. joint venture to develop application software for a digital telephone switching system. \$3.5 million (¥500 million). (JPN:49%-PRC:51%). 6/87.

Analogue Technical Agencies Ltd. (HK)/MOFERT, CEIEC
Established joint venture service center at the MOFERT Computer Center in Beijing. 6/87.

Nixdorf Computer AG (FRG)/Shanghai Communications Development Corporation and Shanghai Union Trading Company
Signed joint venture agreement establishing maintenance center to service systems Nixdorf has sold to Shanghai Volkswagen and various hotels. 6/87.

Philips NV (Netherlands)/Shenzhen Advanced Science and Technology
Signed agreement establishing Shenzhen Shen Fei Optical Systems Co. joint venture to manufacture laser optical systems. Registered capital: \$39.7 million (DG80 million). 6/87.

Electronics (Consumer)

China's Imports

General Electric Co. (US)/Shanghai television manufacturers
Signed agreement to supply production line to manufacture 500,000 color television sets annually. 3/87.

Mona Electronics International (Canada)/South China branch of CEIEC
Signed contract to supply 700,000 color and 550,000 black and white TV sets. \$120 million. 6/87.

Investments in China

(Kenya)/Shenzhen Electronics Group
Signed agreement establishing joint venture to assemble color television sets, radio-cassette players, and other electronic products. 3/87.

Matsushita Electric Industrial Company (Japan)/Beijing Electronic Tube Factory, Beijing Branch of CEIEC, Beijing International Trust and Investment Corporation under the Industrial and Commercial Bank of China, and Beijing Kinescope Factory
Signed agreement establishing Beijing-Matsushita Color Kinescope Company Ltd. 20-year joint venture to produce color television tubes. \$133.5 million (¥497 million). (50-50). 5/87.

Mona Electronics International (Canada)/South China branch of CEIEC
Signed contract establishing joint venture to produce video recorders. \$5.8 million. 6/87.

Welgo Technology Ltd. (HK)/Beijing Xicheng Silver Swallow Service Company and CITIC
Managing Beijing Yinyan Electronic Flash Co. joint venture that produces five models of electronic flashes. \$268,666 (¥1 million). 6/87.

Lotus Development Inc. (US), H.K. Lotus Scientific Development (HK)/China Everbright Holdings
Signed accord to form Everbright Lotus CRT Manufacturing joint venture to produce cathode-ray tubes (CRTs) for color television sets. \$70 million. (HK:74%-PRC:26%). 6/87.

Engineering and Construction

China's Imports

Syntronics Ventures Inc. (Canada)/Shanghai Broadcasting Bureau
Signed letter of intent to construct a 450-meter communications tower.

Finance, Leasing, and Insurance

Other

Visa International (US)/BOC
Bank of China will become member of Visa. 3/87.

22 International banks/MOFERT-Kerry Industrial Corp. (HK) (Sino-HK joint venture)
Signed memorandum of understanding to provide loan for construction of China World Trade Center in Beijing. \$280 million. 3/87.

Japan Overseas Economic Cooperation Fund (Japan)/(PRC)
Will provide loan to finance the construction of new roads and harbors. 3/87.

Dutch Aro Bank (Netherlands)/Jiangsu Trust and Investment Corporation
Signed cooperative business agreement. 5/87.

Australian National Bank Ltd. (Australia)/People's Construction Bank of China
Signed trade and investment agreement. 6/87.

Standard Chartered Bank (UK)/People's Construction Bank of China
Will expand business links. 7/87.

Export-Import Bank of Japan (Japan)/Shanghai branch of People's Construction Bank of China
Signed contract supplying loan to finance ethylene manufacturing plant. \$38.6 million (¥5.8 billion). 7/87.

(France)	Signed agreement to provide loan for 13 Sino-French projects, including one to renovate the Beijing subway. \$146 million (F897 million). 7/87.	Window of the World Restaurant Co. Ltd. (HK)/Shanghai Ruijin Mansion	Received approval to establish Ruihua Food Development Company ten-year joint venture to manage Chinese and Western-style restaurants in the Ruijin Mansion. 6/87.
Yasuda Trust and Banking Co. (Japan)/People's Construction Bank of China	Signed agreement calling for financial cooperation. 7/87.	Kentucky Fried Chicken Corporation, subs. of PepsiCo (US)/Beijing Travel and Tourism Corporation and Beijing Animal Husbandry Corporation	Will open 3-story Kentucky Fried Chicken restaurant in Beijing. \$1.01 million (¥3.8 million). (US:60%-PRC:40%). 7/87.
Food Processing and Food Service			
<u>China's Imports</u>			
NA (Denmark)/China Kaili Industry Corp. Ltd.	Signed contract to supply instant coffee production line. \$2.6 million (DM4.7 million). 12/86.	Shanghai Industrial Engineering Company Ltd. (HK)/Shanghai Seagull Hotel and Shanghai International Seaman's Club	Founded Shanghai Seagull Bar Company Ltd. to serve Western food and drinks and sell Western cigarettes. \$268,266 (¥1 million). (50-50). 8/87.
NA (Singapore)/China Kaili Industry Corp. Ltd.	Signed letter of intent to supply equipment and raise loans for above. 12/86.	Machine Tools and Machinery	
Henry Simon Inc., subs. of Simon Engineering Plc (UK)/Shijiazhuang, Hebei	Signed contract to supply complete flour mill with 300 tonne/day processing capacity. \$3.2 million (£1.9 million). 4/87.	<u>China's Imports</u>	
Sodima Subsidiary Yoplait (France)	Signed contract to manufacture yogurt in Tianjin. 5/87.	De Vlieg (US)/Wuhan Refrigeration Factory, Hubei	Will supply a jigmill machining center. \$500,000. 4/87.
Artois (Belgium)/Five Star Brewery, Beijing	Awarded contract to supply two beer production lines. \$5.4 (Bfr200 million). 6/87.	Butler Newall Machine Tool Co. Ltd. (UK)/Beijing Jeep Corp.	Signed agreement to supply numerically controlled crankshaft and camshaft grinding machines. \$3 million. 4/87.
Numero Uno Franchise Corp. (US) and NA (HK)	Signed franchise agreement to set up pizza restaurant in China. 6/87.	International Technology Syndicate Inc. (US)/Two joint ventures in Guangdong	Received order for two production lines for the manufacture of permanent magnet d.c. and universal a.c. motors. 5/87.
Shin Nihon Kikai Kogyo (Japan)/Ruiho Food Factory, Lanzhou	Supplied two cookie-making production lines. \$16.1 million (¥60 million). 6/87.	Standard Fuel Engineering Co. (US)	Awarded contract for continuous belt heat treatment line. 6/87.
Danish Interbrew, subs. of Faxe (Denmark)/Guangzhou Brewery, Guangdong	Signed compensation agreement under which Interbrew will supply technology, equipment, raw materials, and technical management assistance to brewery, in return for exclusive right to sell "Double Happiness" brand beer on international market. 6/87.	Soudronic Company Ltd. (Switzerland)/Shantou Light Industrial Machinery Factory, Guangdong	Signed agreement establishing joint venture repair center to service imported welding machines. 7/87.
Marubeni Corp. (Japan)/Tianjin	Awarded contract to establish broiler chicken raising and slaughtering plant under compensation agreement by which payment will be made in part with output from the plant. 7/87.	<u>Investments in China</u>	
<u>Investments in China</u>			
Simon Engineering Plc (UK)/Shanghai Food Bureau	Signed memorandum of understanding to establish Shang-Sima food processing training and service center. 11/86.	Crane Packing Ltd. (UK)/Tianjin Mechanical Seal Factory	Established 25-year joint venture to produce mechanical seals for use in pumps and compressors. (UK:33%-PRC:67%). 5/87.
Remy Martin (France)/Tianjin Vineyard	Will extend for another ten years joint venture agreement to produce table wine. 2/87.	Ingersoll-Rand (UK)/Xuanhua Pneumatic Machinery Factory (Hebei) and Shanghai Compressor Factory	Signed contract establishing Xuanhua/Ingersoll-Rand Mining and Construction Machinery Ltd. joint venture to produce rock-drilling equipment, and Shanghai/Ingersoll-Rand Compressor Ltd. joint venture to produce portable and fixed air compressors for industrial and construction use. Each \$3.5 million. 6/87.
Kilo Forward (HK) and Tecli (France)/Shanshan Grape Development Co., Xinjiang	Signed agreement establishing Xinjiang Shanshan Fruit Corp. joint venture to produce hami melon juice and jam, and various other fruit juices. \$3.9 million. 3/87.	Krupp Gmbh, subs. of Fried, Krupp GmbH (FRG)/Tianjin	Will cooperate in manufacturing two models of hydraulic hammers. 7/87.
Coutinho Food Engineering GmbH, subs. of Coutinho Caro and Co. AG (FRG), and China Resources (Holdings) Co. Ltd. (HK)/China Foodstuff Technology Development Corporation, Shenzhen Import and Export Trade (Group) Corporation, and China Electronic Kitchen Utensils (Holdings) Corporation	Established Shenzhen Brewery joint venture and will supply technology and equipment for plant. Registered capital: \$30 million (DM53.6 million). FRG:15%-HK:20%-CF:20%-Shz:15%-ChE:20%-10% for bid). 6/87.	Medical Equipment and Devices	
Energoinvest (Yugoslavia)/Beijing Nuclear Design Institute	Cooperating on designs for Tianjin Bohai Brewery with annual capacity of 60,000 tonnes of beer. 6/87.	<u>China's Imports</u>	
NA (FRG)/Dachang, Hebei	Opened Hua'an Meat Co. Ltd. joint venture. 6/87.	Ventrex Laboratories Inc. (US)/Sino-American Biotechnology Co.	Will supply immunodiagnostic screening tests for pregnancy and Strep A, as well as technical training of personnel for future production in China using Ventrex-supplied raw materials. 6/87.
NA (Japan) and NA (HK)/Xiamen	Begin operation of Marusan Seafood (Xiamen) Co. Ltd. joint venture. \$1 million. (JPN:50%-HK:10%-PRC:40%). 6/87.	<u>Investments in China</u>	
Denmark China Food Systems (Sino-Danish joint venture)/Tianjin	Supplied equipment for processing agricultural products and is negotiating joint venture for quick-freezing vegetables. 6/87.	Pacific Biomedical Group (Australia)/Guangdong Provincial Hospital	Signed joint venture agreement to manufacture artificial human heart valves. 12/86.
Metals, Minerals, and Processing Technology			
<u>China's Imports</u>			
Dorr-Oliver Europe BV (Netherlands)/CNTIC	Awarded contract to supply equipment for new alumina refinery under construction in Hejin, Shanxi.	NA, subs. of Nissho Iwai Corp. (Japan)/Tianjin Hanaco Medical Co. (Sino-Japanese joint venture)	Japanese company bought into previously established joint venture to manufacture disposable blood transfusion kits. (N:10%-TJ:90%). 8/87.

Krupp Industrietechnik GmbH, subs. of Fried, Krupp GmbH (FRG)/China Metallurgical Import and Export Corporation

Received order for three continuous casting plants. 4/87.

Marubeni Corp. (Japan)/CNTIC

Signed agreement to supply 2,500 tonnes of round steel bar for use in World Bank-financed Red Soil Development Project. \$697,310 (¥98 million). 5/87.

(UK)/Shanghai Aluminum Factory

Supplied 24-piece assembly line to produce extra-wide aluminum foil. \$43.5 million (¥162 million). 6/87.

Krupp Industrietechnik GmbH, subs. of Fried, Krupp GmbH (FRG)/Shanghai No. 5 Steel Factory

Signed agreement to deliver complete set of equipment for wire rod rolling mill. 7/87.

Investments in China

Davy McKee (US), subs. of Davy Corp. Plc. (UK)/MMI

Signed letter of intent to establish joint venture company in connection with the Beilun Iron and Steel project in Ningbo. 11/86.

Antofagasta Holdings, and Madeco (NA)

Established joint venture to install and operate 8,000 TPY nonferrous wire and tube plant. 4/87.

Aluminum Company of America (Alcoa) (US)/Shandong Aluminum Works

Negotiating joint venture to produce tabular alumina. 5/87.

NA (HK)/Mineral Resources Development Corporation of Luobei County, China Geological Technology Development Company, and Mineral Products Development Company

Established corporation to mine graphite discovered in Luobei County, Heilongjiang. 6/87.

Shinko Co. (Japan) and Yiho Enterprise Co. (HK)/Shanghai No. 2 Copper Tube Factory, Shanghai Nonferrous Metal Corporation, Shanghai Trust & Consultancy Co., and BOC

Established Shanghai Hengli Metal Industry Co. Ltd. joint venture to produce copper, copper alloy, stainless steel tubes and products, and various metallic tubes. 6/87.

City Resources (Asia) Company Ltd. (HK)/Hunan Province

Signed 12-year joint venture agreement to mine diamonds and precious metals. \$300,000. (50-50). 6/87.

Aluminum Smelters of Victoria Ltd. (Australia) and Shortridge Ltd. (HK)/CITIC, Hebei Provincial Metallurgical Industry Corporation, Qinhuangdao Municipal Land and Sea United Shipping Corporation, and MMI

Signed agreement to jointly enlarge Bohai Aluminum Ltd. Co. \$286 million (Aus\$400 million). Aus:25%-HK:18%-CITIC:35.6%-rest:21.4%). 7/87.

EC Energy Resources Ltd. (HK)/NA, Zhuhai

Constructing Harbour Industrial Laminate Ltd. joint venture to produce copper-clad laminate. 7/87.

Other

Energy Department of the Ministry of Trade and Industry (Japan)/China Nonferrous Metal Industry Corporation

Established 5-year cooperative program to exploit rare metal resources in Guangdong and Heilongjiang provinces. 6/87.

Mining Equipment

China's Imports

Joy Manufacturing Co. (US)

Negotiating contract to transfer technology for producing continuous mining machines. 5/87.

(Poland)

Signed agreement to supply machinery for coal washing plant in Zaozhuang County, Shandong. 6/87.

Investments in China

Mine Safety Appliances Co. (US)/Wuxi Chemical Instrument Co., Jiangsu

Established Wuxi-MSA Safety Equipment Ltd. joint venture to manufacture instruments for measuring toxic and explosive gases in both mining and industry. 5/87.

Funke, Huster and Company (FRG)/Yanzhou Coal Bureau and Xinglongzhuang coal mine, Shandong

Supplied mine safety monitoring system. 6/87.

Other

Mine and Dressing Factory Design Institute (USSR)/Qixing coal dressing factory, Heilongjiang, and another coal dressing factory

Will supply new coal dressing factory to Qixing, and design new facilities for other factory. 6/87.

Packaging Equipment

Investments in China

Two companies (Singapore)/Xinhui Second Bureau of Light Industry and Jiangmen Supply and Marketing Bureau, Guangdong

Signed contract establishing joint venture plastic factory to produce packaging, clothes, and garbage bags. \$1.2 million. 6/87.

Dainippon Ink and Chemicals Company (Japan)/Shantou Light Industrial Machinery Factory, Guangdong

Transferred license certificate for automatic can-welding production line. 7/87.

Petroleum, Natural Gas, and Related Equipment

China's Imports

Offshore Systems Engineering Ltd. (UK)/Everbright Corporation and Jia Feng Industrial Co., Shenzhen

Will supply dual-role manned/unmanned submersible unit and training program for underwater engineering and inspection work of China's offshore oil and gas industry. \$1 million. 5/87.

Trico Industries, Inc. (US)

Received order for oilfield pumps. \$6 million. 6/87.

Investments in China

Mohamed Outeriba Group (United Arab Emirates)/Shenzhen

Established oil refinery joint venture with capacity to refine 21 million barrels annually. \$364 million. 7/87.

Other

Can-Ocean Engineering Ltd. (Canada)/Shanghai Offshore Oil Service Corp.

Will study development potential of an East China Sea oil discovery. 7/87.

Pharmaceuticals

Investments in China

NA (Ecuador)/Shaanxi government

Will establish joint venture pharmaceutical factory in Xi'an to produce a pain killer, a nasal antihistamine, and a treatment for ulcers. 7/87.

Ports

Other

Port of Felixstowe International and the British Government (UK)/Ministry of Communications

Will build deep sea terminal at Beilungang. \$100.7 million. 5/87.

Specs Consultants, subs. of Port of Singapore Authority (Singapore)/Tianjin Harbor and Construction Co.

Awarded consultancy services contract for Tianjin port berth-development project. 6/87.

Power Plants and Equipment

China's Imports

Lyonnais des Eaux, subs. of Degremont (France)/Guangdong Nuclear Power Joint Venture Co. and Sichuan Province

Lyonnais will supply water treatment equipment to Guangdong, and Degremont will supply equipment to Yung Ya thermal power station in Sichuan Province. 5/87.

Maeda Construction (Japan)/Huaxing Construction, Second Bureau of China State Construction, and Guangdong Nuclear Power Joint Venture Co. (Sino-Hong Kong joint venture)

Sumitomo Electric Industries Ltd. (Japan), Balfour Beatty Power Construction Ltd. (UK), and China Light and Power Co. (HK)

Davy Morris (UK)/Guangdong Nuclear Power Joint Venture Co.

Weir Pumps (UK)/Taiyuan Thermal Power Station, Shanxi

Investments in China

Babcock Wilcox Ltd. (US)/Babcock Wilcox Beijing Co. Ltd.

China Hutchison Whampoa and Hong Kong Electric (HK)/CITIC

Space Electronic Corporation (US)/Xiangtan Electric Machinery Plant, Hunan

Other

British Electricity International, General Electric Co. Plc, and Balfour Beatty Ltd. (UK)/MWREP Canadian International Project Managers Ltd. (Canada)

Bechtel North American Power Corporation (US)/Guangdong Nuclear Power Joint Venture Co.

Printing Equipment, Publishing, and Broadcasting

China's Imports

Entertainment & Sports Programming Network, subs. of RJR Nabisco Inc. (US)/China Communications and Individual regional broadcasters in five provinces

Other

Pergamon GED International (UK)/China Central Television and CITIC

(Bulgaria)/Xinhua News Agency

Pergamon Press (UK)/Central Party Literature Publishing House

Property Development and Property Management

China's Imports

Sidney Kaye Firmin Partnership (UK) and NA (HK)/Mainland Chinese Corporation

Hyatt Hotel Group (US)/NA

Investments in China

Hemin Development Co. Ltd. (HK)/Shanghai Baoshan Songnan Industry Company, Baoshan Foreign Trade Company, Shanghai Dredging Company, and the Shanghai branch of SINOTRANS

Signed contract for construction of two nuclear power plants at Daya Bay, to begin operations in 1992 and 1993. 6/87.

Awarded contract for engineering work on 120-km power transmission lines connecting Guangdong with Hong Kong. 7/87.

Awarded contract to supply six cranes for Guangdong nuclear power station at Daya Bay. \$4.6 million (£2.75 million). 4/87.

Will supply six boiler feed pumpsets. \$1.5 million (£900,000). 6/87.

Signed joint venture agreement to produce boilers for power stations. Registered capital: \$12 million. 8/86.

Will invest in 700,000-KW thermal power station in Ligang, Jiangsu. \$349.3 million (¥1.3 billion). 4/87.

Established joint venture to manufacture solar power stations for rural, desert, and island use. 8/87.

Signed memorandum of understanding establishing framework for cooperation; first stage is a study of the overall electricity distribution in Shanghai. 11/86.

Will conduct feasibility study for World Bank-supported Yangtze Valley Dam Project. \$8.3 million. 4/87.

Signed contract establishing Bechtel as safety consultant to Daya Bay Nuclear Power Station. 6/87.

Will supply weekly program "ESPN Global Sports" to be broadcast in China.

Signed agreement to coproduce 52 half-hour educational programs entitled "What's New." 4/87.

Will exchange news stories, photographs, and services. 5/87.

Signed contract to publish second edition in English of "Selected Speeches and Writings of Deng Xiaoping." 7/87.

Awarded contract to design international hotel in Beijing. 6/87.

Constructing hotels in Shanghai and Xi'an, and negotiating construction of hotel in Beijing. 8/87.

Established Shanghai Hua'an Industrial Co. Ltd. joint venture with 170 guest rooms and auxiliary facilities. 6/87.

Hengya Engineering Co. Ltd. (HK)/Shanghai Jinjiang Associates Corporation and Shanghai Hongqiao Associated Development Corporation

International Geological System Co. Ltd. (Canada)/Shanghai Huashan Recreation Service Company

Singapore Lian Huat Company Ltd. (Singapore)/Shanghai Shengda Service Company

Mr. Sheng Yu Hu (HK)/Shanghai Yangtze Tourist Trading Company

Other

Lafe Investment, subs. of Lafe Holdings (HK)/Zhongcun Electronic Industries Corp., and China Light Industrial Products Import-Export Corp.

Scientific Instruments

China's Imports

Racal Marine Systems (UK)

Phox Systems Ltd. (UK)

Servomex Ltd. (UK)/China National Chemical Construction Corporation

Shipping

China's Imports

(Poland)

Other

(Greece)

Telecommunications

China's Imports

Reach Electronics (US)/DRV Communications Co. Ltd. (Sino-US joint venture)

GEC Telecommunications (UK)/Guangdong Posts and Telecommunications

AT&T (US)/INSTRIMPEX

Nikola Tesla (Czechoslovakia)

Space Systems Group of the MBB Corporation (FRG)/China Great Wall Industry Corporation

Other

Dow Chemical Company (US)/China National Posts and Telecommunications Appliance Corporation

Will construct Shanghai Jinming Estate Co. Ltd. joint venture with shops, restaurants, recreational facilities, a clinic, and 288 apartments. \$30 million. (HK:50-SH:50). 6/87.

Received approval to establish Shanghai Holiday Villa Co. Ltd. joint venture with 180 rental villas, Chinese and Western restaurants, bars, pools, tennis courts, etc. \$30 million. (Can: 80%-PRC:20%). 6/87.

Established Shanghai Jieli Interior Decorating and Cleaning Company Ltd. joint venture to provide repair and cleaning services to hotels, offices, and public buildings. Registered capital: \$268,666 (¥1 million). (SP:60%-PRC:40%). 8/87.

Established Shanghai Hua'an Industrial Co. Ltd. 20-year joint venture with 522 rooms and 116 offices to let. \$40 million (50-50). 6/87.

Signed agreement to establish industrial complex in Panyu County, Guangdong including factories, staff quarters, cafeterias, etc.; Lafe will lease site for 30 years. 6/87.

Received order for equipment to be used for hydrographic surveying in the middle region of the Yangtze River. 5/87.

Supplied complete aeration control system, and will supply water purity monitoring equipment. 6/87.

Signed agreement to supply zirconia oxygen analyzers for measuring flue gas. 6/87.

Signed agreement to supply inland river radar navigation equipment and technology. 6/87.

Reached agreement to develop cooperation in shipping, including refurbishing engine parts from ships under demolition and increasing the number of Greek vessels chartered to China. 7/87.

Signed contract to transfer communications electronics technology. 4/85.

Awarded contract to supply and install optical terminal and repeater equipment, and digital multiplex for the Hong Kong-Guangdong optical fiber system. 4/87.

Will supply digital electronic switching system for national private network of the Ministry of Railways. 5/87.

Supplied telephone exchanges. \$15 million. 6/87.

Signed contract calling for technical cooperation and the sale of equipment relating to DFH-3 satellites. 7/87.

Signed agreement licensing technology for the manufacture of plastic cable shielding tape at the Chengdu Cable Plant. 4/87.

Eosat (US) Will serve as the marketing agent for the distribution of Landsat remote-sensing products from the new Chinese ground station at Beijing. \$1-\$3 million. 6/87.

Becker and Associates (US)/China Great Wall Industry Corp. Signed letter of intent to market satellite launch products. 6/87.

Textiles and Textile Plants and Equipment

China's Imports

Irish Looms (UK) Received order for linen tablecloths. 6/87.

Nuovo Pignone (Italy)/Shanghai Received order for 175 looms, as well as assistance in modernizing a textile factory in Shanghai. 6/87.

(UK)/Lanzhou, Gansu Supplied carpet weaving assembly line with production capacity of 1.05 million sq. m. of polypropylene carpet annually. 6/87.

Investments in China

Zonghan Investment Co. Ltd. (HK)/Shanghai Chemical Fiber Industry Company and Shanghai Minhang Associated Development Corporation Established Shanghai Lianhan Synthetic Co. Ltd. joint venture to produce various polyester fiber spun products. 6/87.

Libya Foreign Trust and Investment Corporation (Libya)/Zhejiang Provincial International Trust and Investment Corporation Signed contract establishing Sino-Libyan 30-year joint venture textile company in Hangzhou. Registered capital: \$10 million. (Lib:45%-PRC:55%). 6/87.

Weisheng Company Ltd. (HK)/Shenyang No. 1 Knitting Mill, Liaoning Established Huasheng Company joint venture to produce 15 million knitted garments annually. \$8 million. (50-50). 6/87.

Novel Enterprises Ltd. (HK)/Xiamen Signed contract establishing joint venture thread-spinning enterprise. \$6 million. (50-50). 6/87.

China Silk American Inc. (Sino-American joint venture) and Deep Wealth Trading Co. Ltd. (NA)/CHINASILK Established Shanghai Huashen Silk Co. Ltd. joint venture to manufacture silk ties and shawls. \$940,329 (¥3.5 million). (For:30%-PRC:70%). 8/87.

Transportation and Transportation Equipment

China's Imports

Qantas Airways Ltd. (Australia)/CAAC Signed agreement to provide engineering and maintenance services on CAAC's fleet of Boeing aircraft. 12/86.

(FRG)/Shanghai Automobile and Tractor Joint Corp. and Shanghai Clutch Plant Signed contract to supply technology to produce diaphragm string clutches for automobiles. 4/87.

Cross International (UK) Received order to supply 12 machines for producing jeeps. 5/87.

Diavia (Italy) Will supply 700 airconditioners to be installed in Fiat Iveco minibuses. 5/87.

C. Itoh & Co. (Japan)/CNTIC Signed agreement to supply field cars and parts for use in World Bank-supported Red Soil Development Project. \$190,693 (¥26.8 million). 5/87.

Krupp Industrietechnik GmbH, subs. of Fried, Krupp GmbH (FRG)/Zhongnan Rubber Industry Will supply extrusion plant to manufacture rubber components for the automotive industry. 6/87.

Bendix/King (US)/CAAC Signed contract to retrofit 10 airliners with contemporary avionics gear. 6/87.

Chrysler Motors Corporation (US)/First Automobile Works, Changchun Signed agreement supplying machinery and technology to produce 300,000 engines annually for light trucks and cars. 7/87.

Investments in China

Auhui (Hong Kong) Company Ltd. (HK)/Machinery Company of Zhuhai Established Auhui (Zhuhai) Trailer Company Ltd. to produce 5,000 single-axis trailers annually. Registered capital: \$20 million. 12/86.

McDonnell-Douglas (US)/Shanghai Aircraft Factory

Inchcape (China) Ltd. Hong Kong (UK)/Shanghai International Container and Motor Transport Co. Ltd.

AE Group (UK)/Nantong Bearing Factory, Jiangsu

Krupp GmbH, subs. of Fried, Krupp GmbH (FRG)/Ministry of Railways

Other

Kampsax International A/S and the Danish Road Directorate (Denmark)

Miscellaneous

Investments in China

Ontario (Canada)/Jiangsu provincial government

Colorado Department of Commerce and Development and 12 Colorado corporations (US)/Hunan

NA (Singapore)

Act Enterprises Pte Ltd. (Singapore)/Tianjin Municipal Science and Technology Company

A.C. Toh (Singapore)/Tianjin Science and Technology Commission

Other

(Philippines)

(Canada)

US government Trade and Development Program (TDP)/Tianjin Economic and Technological Development Zone

(Bulgaria)

(GDR)

(Greece)

Signed agreement under which cargo doors for 18 of 25 aircraft to be built in Shanghai will have Chinese-made doors. 3/87.

Established Shanghai Land-Ocean Inchcape International Container Transport Co. Ltd. 15-year joint venture to provide services as an international container transfer station. Registered capital: \$4.8 million (¥18 million). (50-50). 6/87.

Signed agreement licensing production of automotive bearings and bearing materials. 6/87.

Will cooperate in design and manufacture of locomotives. 7/87.

Awarded consultant contract for a World Bank-financed highway project. 11/86.

Signed joint venture to build technology center in Nanjing. 5/87.

Signed memorandum of understanding to establish a Hunan-Colorado joint venture development corporation in Changsha. 6/87.

Opened Tianjin International Technology Corporation joint venture to provide information and consultancy services to foreign investors and Chinese enterprises, as well as carry out feasibility studies and technical appraisals. 6/87.

Established Tianjin International Science and Technology Consultants Company joint venture to provide consultancy services to Chinese and foreign firms and Sino-foreign joint ventures on the scientific technology market and the development of products. 6/87.

Established InterTech Corp. 50-year joint venture to provide consulting services to foreign companies interested in establishing joint ventures in China. \$7 million. 7/87.

Signed trade protocol calling for trade in raw materials, metals, minerals, and commodities. 3/87.

Signed memorandum of understanding to assist in the establishment of a language center and in the development of projects in 14 open coastal cities, to upgrade management training in China, and to provide human development training. \$44.7 million (C\$60 million). 3/87.

Will provide funds for zone administrators to hire American consultants to evaluate development projects. \$467,000. 3/87.

Signed agreement for long-term economic, scientific, and technological cooperation. 5/87.

Signed agreement for cooperation in geology, coal mining and processing, nuclear energy, chemicals, metallurgy, electronics, machinery, metrology, food, light industries, architecture, agriculture, and forestry. 5/87.

Will cooperate in research in energy-related areas, biology, biotechnology, agriculture, physics, construction materials, metallurgy, and sociology. 5/87.

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